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CONSULAR REPORTS.

COMMERCE, MANUFACTURES, ETC.

VOL. LXXI.

NOS. 268, 269, 270, AND 271.

JANUARY, FEBRUARY, MARCH, AND APRIL, 1903.

DEPARTMENT OF STATE * UNITED STATES OF AMERICA *

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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COMMERCE, MANUFACTURES

[FOR TABLE OF CONTENTS, SEE FIRST PAGE.]

DEPARTMENT OF STATE ★ UNITED STATES OF AMERICA ★

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CONTENTS.

Page.
LIST OF PUBLICATIONS IX
I.—AUTOMOBILES IN EUROPE 1
(Austria, 1—Belgium, 3—Denmark, 4—France, 5—Germany, 7—Great Britain, 8—Greece, 9—Italy, 9—Netherlands, 10—Russia, 13—Spain, 13—Sweden, 14—Switzerland, 15.)
II.—AUTOMOBILES IN CANADA ..... *Bittinger* 16
Smith 16
III.—AUTOMOBILES IN LATIN AMERICA 17
(Argentina, 17—Brazil, 17—Chile, 18—Mexico, 18.)
IV.—AUTOMOBILES IN ASIA 20
(British India, 20—China, 22—Straits Settlements, 22.)
V.—AUTOMOBILES IN AUSTRALASIA 23
(New South Wales, 23—New Zealand, 24—Victoria, 25.)
VI.—AUTOMOBILES IN CAPE COLONY ..... *Bigham* 25
VII.—AUTOMOBILES IN THE CANARY ISLANDS ..... *Berliner* 27
VIII.—AUTOMOBILE REGULATIONS IN EUROPE 28
(Austria, 28—Belgium, 31—France, 33—Germany, 38—Netherlands, 43.)
IX.—NEW GERMAN AUTOMOBILE ..... *Monaghan* 46
X.—THE MOTOR-CYCLE TRADE IN GREAT BRITAIN ..... *Evans* 48
XI.—COMMERCE AND INDUSTRIES OF GERMANY IN 1901 ..... *Mason* 55
XII.—SALABLE AMERICAN PRODUCTS FOR GERMANY ..... *Mason* 68
XIII.—ALCOHOL MOTORS IN GERMANY ..... *Hughes* 76
XIV.—ALCOHOL FROM THE JERUSALEM ARTICHOKE ..... *Haynes* 76
XV.—GERMAN CERAMIC INDUSTRY ..... *Schumann* 77
XVI.—MILK POWDER IN GERMANY ..... *Hughes* 78
XVII.—NEW FOOD FOR LIVE STOCK IN GERMANY ..... *Liefeld* 79
XVIII.—EXPOSITION OF HYGIENIC MILK SUPPLY AT HAMBURG 80
XIX.—FORESTRY IN GERMANY ..... *Kehl* 81
XX.—GERMAN FIRE EXTINGUISHER ..... *Diederich* 82
XXI.—ELECTRIC FIRE PUMP IN ROUEN ..... *Haynes* 83
XXII.—WAGES IN FRANCE ..... *Atwell* 85
XXIII.—REDUCTION OF HOURS OF LABOR IN FRANCE ..... *Covert* 88
XXIV.—FRENCH CAPITAL IN FOREIGN COUNTRIES ..... *Covert* 89
XXV.—STREET ARCHITECTURE IN PARIS ..... *Gowdy* 92
XXVI.—COAL STRIKE IN FRANCE ..... *Atwell* 92
XXVII.—THE COAL INDUSTRY ..... *Boyle* 94
XXVIII.—THROUGH SERVICE FROM PARIS TO PEKIN ..... *Haynes* 97

Page.
XXIX.—Swiss Device for Carrying Live Fish....................*Morgan* 97
XXX.—International Exposition at Athens....................*Jackson* 99
XXXI.—German Exports to the United States....................*Mason* 100
XXXII.—Manchester Exports to the United States............*Grinnell* 101
XXXIII.—Popular American Wares in England....................*Mahin* 101
XXXIV.—New Markets for French Cattle....................*Haynes* 102
XXXV.—Maltese Goats.................... } *Grout* 103
XXXVI.—Malta Trade-Mark Regulations.................... } *Grout* 104
XXXVII.—Phylloxera in Italy....................*Covert* 105
XXXVIII.—Estimates of Sugar Crop for 1902–3....................*Diederich* 106
XXXIX.—National Consumption of Sugar....................*Mahin* 108
XL.—Cultivation of Beet Seed from Imported Mother Seed, *Diederich*.................... 109
XLI.—Sugar Production of Cuba.................... } *Squiers* 111
XLII.—Reorganization of Cuban Rural Guard.................... } *Squiers* 112
XLIII.—Foreign Trade of Cuba.................... } *Squiers* 113
XLIV.—United States Capital in Canada.................... } *Bittinger* 115
XLV.—Stationery Goods in Canada.................... } *Bittinger* 121
XLVI.—Canadian Peat-Fuel Operations....................*Gunsaulus* 124
XLVII.—Railway Projects in Peru....................*Dudley* 127
XLVIII.—Import Duties in the Dominican Republic....................*Powell* 129
XLIX.—New Japanese Tariff....................*Buck* 130
L.—Australian Tariff Changes....................*Bray* 137
LI.—Copper in New South Wales....................*Baker* 138
LII.—Waterworks for Apia....................*Heimrod* 141
LIII.—Trade Conditions in Tonkin....................*Covert* 142
LIV.—Demand for American Vehicles at Harput....................*Norton* 143
LV.—Gold Coast Railway....................*Evans* 144
LVI.—Notes (Flour Mills in Ireland—The Cleansing of Fruit—Changes in German Customs Tariff—International Congress of Hygiene and Demography at Brussels—Russian Trade and Finances in 1902—Russian Railroad Orders—Iron and Coal Industries in Russia—Russian Grain Crops—German Trade with Cuba—New German-South American Steamship Service—German Carrying Trade to and from Brazil—Duty on Cement and Pipes in Costa Rica—Communication with Barbados—Packing Postal Parcels for Honduras—Open Ports in Cuba—American vs. European Trade in Cuba—Exhumation and Removal of Bodies in Cuba—Demand for Fruit-Handling Apparatus in New Zealand—Import of Cacao into Samoa—Japanese Enterprises and Foreign Capital—Water-Supply Plant for Java—Java-China-Japan Steamship Line—Florida vs. Polynesian Phosphate—Argentine Meat for England—

Page.

Cable to the Canary Islands—Alcohol from Acetylene—New Swiss Tariff Law—Progress of Simplon Tunnel—Animal Industry in Slavonia—Waterproof Briquettes in Germany—Germany's Foreign Lumber Trade—Depression in British Shipbuilding—British Inquiry for Builders' Accessories—Scandinavian-South African Steamship Line—Demand for Traction Engines in Johannesburg—Demand for Portable Houses in Cape Colony—British Railway in Portuguese West Africa—The Tunisian Almond Harvest—International Exposition of Hygiene at Buenos Ayres—Foreign Insurance Companies in Cuba—Physicians in Ecuador—Price of Ice in Colombia—Tonnage Dues in Colombia—Railway in Dutch Guiana—Mortality in Paraguay—German Opening for Canned and Dried Goods—Fire Engines for La Rochelle—French Trade in Bicycles and Automobiles—Area of Vineyards in Germany—Gold in Kamchatka—Duty on Chinese Books—Consular Reports Transmitted to Other Departments) 146

LVII.—Foreign Reports and Publications (Import Trade of Persia—The Industrial Development of Persia—Commerce of Algeria in 1901—Teak Wood in Siam—Trade of Seychelles Islands—The Trans-Pacific Cable—Foreign Trade of Crete)................ 165

REPORTS BY COUNTRIES.

AFRICA: Page.
  Gold Coast Railway ... 144
AFRICA, PORTUGUESE WEST:
  British railway in ... 161
AFRICA, SOUTH:
  Automobiles in Cape Colony ... 25
  Demand for portable houses in Cape Colony ... 160
  Demand for traction engines in Johannesburg ... 160
  Scandinavian steamship line to ... 160
AMERICA, LATIN:
  Automobiles in ... 17
ARGENTINE REPUBLIC:
  Automobiles in ... 17
  International Exposition of Hygiene at Buenos Ayres ... 161
  Meat of, for England ... 157
ASIA:
  Automobiles in ... 20
AUSTRALASIA:
  Automobiles in ... 23
AUSTRALIA:
  Tariff changes in ... 137
AUSTRIA-HUNGARY:
  Animal industry in Slavonia ... 158
  Automobile regulations in ... 28
  Automobiles in ... 1
BARBADOS:
  Communication with ... 152
BELGIUM:
  Automobile regulations in ... 31
  Automobiles in ... 3
  International Congress of Hygiene and Demography at Brussels ... 148
BRAZIL:
  Automobiles in ... 17
  Carrying trade to and from Germany ... 151
BRITISH INDIA:
  Automobiles in ... 20
CANADA:
  Automobiles in ... 16
  Peat-fuel operations in ... 124
  Stationery goods in ... 121
  United States capital in ... 115
CANARY ISLANDS:
  Automobiles in ... 27
  Cable for the ... 157
CAPE COLONY:
  Automobiles in ... 25
  Demand for portable houses in ... 160

CHILE: Page.
  Automobiles in 18
CHINA:
  Automobiles in 22
  Duty on Chinese books in 164
  China-Java-Japan steamship line 156
  Through service from Paris to Pekin 97
COLOMBIA:
  Price of ice in 162
  Tonnage dues in 162
COSTA RICA:
  Duty on cement and pipes in 152
CUBA:
  American vs. European trade in 153
  Exhumation and removal of bodies in 153
  Foreign insurance companies in 161
  Foreign trade of 113
  Open ports in 153
  Reorganization of rural guard in 112
  Sugar production of 111
DENMARK:
  Automobiles in 4
DOMINICAN REPUBLIC:
  Import duties in 129
ECUADOR:
  Physicians in 162
ENGLAND:
  Manchester exports to the United States 101
  Popular American wares in 101
EUROPE:
  Automobile regulations in 28
  Automobiles in 1
FRANCE:
  Alcohol from acetylene 157
  Alcohol from the Jerusalem artichoke 76
  Automobile regulations in 33
  Automobiles in 5
  Capital of, in foreign countries 89
  Coal strike in 92
  Electric fire pump in Rouen 83
  Fire engines for La Rochelle 163
  New markets for cattle of 102
  Reduction of hours of labor in 88
  Street architecture in Paris 92
  Through service from Paris to Pekin 97
  Trade in bicycles and automobiles in 163
  Wages in 85
GERMANY:
  Alcohol motors in 76
  Area of vineyards in 163
  Automobile regulations in 38
  Automobiles in 7
  Carrying trade to and from Brazil 151

GERMANY—Continued. Page.
  Ceramic industry of ... 77
  Changes in customs tariff of ... 147
  Commerce and industries of, in 1901 ... 55
  Cultivation of beet seed from imported mother seed in ... 109
  Exports to the United States ... 100
  Exposition of hygienic milk supply at Hamburg ... 80
  Fire extinguisher in ... 82
  Foreign lumber trade of ... 159
  Forestry in ... 81
  Milk powder in ... 78
  New automobile in ... 46
  New food for live stock in ... 79
  New South American steamship service ... 151
  Opening for canned and dried goods in ... 163
  Salable American products for ... 68
  The cleansing of fruit in ... 146
  Trade of, with Cuba ... 150
  Waterproof briquettes in ... 159
GREAT BRITAIN:
  Automobiles in ... 8
  Depression in shipbuilding of ... 159
  Inquiries for builders' accessories in ... 159
  The motor-cycle trade in ... 48
GREECE:
  Automobiles in ... 9
  International exposition at Athens ... 99
GUIANA, DUTCH:
  Railway in ... 162
HONDURAS:
  Packing postal parcels for ... 152
IRELAND:
  Flour mills in ... 146
ITALY:
  Automobiles in ... 9
  Phylloxera in ... 105
JAPAN:
  Enterprises and foreign capital of ... 155
  Japan-Java-China Steamship Line ... 156
  New tariff of ... 130
JAVA:
  Water-supply plant for ... 155
  Java-China-Japan Steamship Line ... 156
KAMCHATKA:
  Gold in ... 164
MALTA:
  Goats of ... 103
  Trade-mark regulations in ... 104
MEXICO:
  Automobiles in ... 18
NETHERLANDS:
  Automobile regulations in ... 43
  Automobiles in ... 10

Page.

New South Wales:
- Automobiles in 23
- Copper in 138

New Zealand:
- Automobiles in 24
- Demand for fruit-handling apparatus in 154

Paraguay·
- Mortality in 163

Peru:
- Railway projects in 127

Polynesia:
- Phosphate of, vs. Florida 156

Russia:
- Automobiles in 13
- Grain crops of 149
- Iron and coal industries in 149
- Railroad orders in 149
- Trade and finances of, in 1902 148

Samoa:
- Import of cacao into 154
- Waterworks for Apia 141

South America:
- New German steamship service to 151

Spain:
- Automobiles in 13

Straits Settlements:
- Automobiles in 22

Sweden and Norway:
- Automobiles in 14
- Steamship line to South Africa 160

Switzerland:
- Automobiles in 15
- Device for carrying live fish in 97
- New tariff law of 158
- Progress of Simplon Tunnel 158

Tonkin:
- Trade conditions in 142

Transvaal:
- Demand for traction engines in Johannesburg 160

Tunis:
- Almond harvest of 161

Turkey in Asia:
- Demand for American vehicles at Harput 143

United States:
- Florida vs. Polynesian phosphate 156

Victoria:
- Automobiles in 25

World:
- Coal industry of 94
- Estimates of sugar crop for 1902–3 106
- National consumption of sugar 108

Full directions for binding the Consular Reports are given in No. 131, page 663.

PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—REVIEW OF WORLD'S COMMERCE, being a summary of the annual reports contained in Commercial Relations.

III.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

IV.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

V.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

VI.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880–81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885–86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications except Tariffs in Central America, etc., are exhausted and the Department is, therefore, unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled SPECIAL CONSULAR REPORTS. There are now the following SPECIAL CONSULAR REPORTS:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Files in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Stave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

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* Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Stave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1901).—Part I. Gas and Oil Engines in Foreign Countries. Part II. Silver and Plated Ware in Foreign Countries.

Vol. 24 (1902).—Creameries in Foreign Countries.

Vol. 25 (1902).—Stored Goods as Collateral for Loans.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Port Regulations, Refrigerators and Food Preservation; Sericulture, etc.; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to $20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to October 1, 1902, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1898, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1875–1877, 1879–1882, 1884–1887, 1895, and 1897 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—*Countries with fixed currencies.*

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S. gold.	Coins.
Argentine Republic..	Gold and silver..	Peso..................	$0.96,5	Gold—argentine ($4.82,4) and ½ argentine; silver—peso and divisions.
Austria-Hungary*.....	Gold	Crown..............	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium....................	Gold and silver..	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
British North America (except Newfoundland).	........do	Dollar..............	1.00	
British Honduras......	........do	........do	1.00	
Chile........................	........do	Peso..................	.36,5	Gold—escudo ($1.25), doubloon ($3.65), and condor ($7.30); silver—peso and divisions.
Costa Rica................	........do	Colon................	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centisimos.
Cuba	Gold and silver..	Peso..................	.92,6	Gold—doubloon ($5.01,7); silver—peso (60 cents).
Denmark..................	Gold	Crown..............	.26,8	Gold—10 and 20 crowns.
Ecuador †	........do	Sucre................	.48,7	Gold—10 sucres ($4.8665); silver—sucre and divisions.
Egypt........................	........do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland	........do	Mark................	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver..	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany..................	Gold	Mark................	.23,8	Gold—5, 10, and 20 marks.
Great Britain............	........do	Pound sterling..	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver..	Drachma..........	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	........do	Gourde..............	.96,5	Silver—gourde.
India ‡......................	Gold	Rupee................	.32,4	Gold—sovereign ($4.8665); silver—rupee and divisions.
Italy	Gold and silver..	Lira..................	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §....................	Gold	Yen	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia.....................	........do	Dollar..............	1.00	
Netherlands............	Gold and silver..	Florin..............	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Newfoundland	Gold	Dollar..............	1.01,4	Gold—$2 ($2.02,7).
Peru ‖......................	........do	Sol	.48,7	Gold—libra ($4.8665); silver—sol and divisions.
Portugal	........do	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ¶..................	........do	Ruble	.51,5	Gold—imperial ($7.718) and ½ imperial ($3.80); silver—¼, ½, and 1 ruble.
Spain........................	Gold and silver..	Peseta..............	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold	Crown..............	.26,8	Gold—10 and 20 crowns.
Switzerland.............	Gold and silver..	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay	........do	Peso..................	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela.................	Gold and silver..	Bolivar..............	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

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* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See CONSULAR REPORTS No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see CONSULAR REPORTS No. 238, p. 359.

§ Gold standard adopted October 1, 1897. (See CONSULAR REPORTS No. 201, p. 259.)

‖ Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896–97, p. 254.

B.—*Countries with fluctuating currencies, 1874–1898.*

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver	Florin	$0.47,6	$0.45,3	$0.40,1	$0.34,5	$0.33,6	$0.42
Bolivia	do	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America	do	Peso	.96,5	.91,8	....	.69,9	.68	.85
China	do	Haikwan tael	1.61	....	....	....	....	....
Colombia	do	Peso	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador	do	do	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt †	Gold	Pound (100 piasters).	....	4.97,4	4.90	4.94,3	....	....
India	Silver	Rupee	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan	Gold	Yen	.99,7	.99,7	....	.99,7	.99,7	.99,7
	Silver		....	....	.87,6	.75,3	.73,4	.91,7
Mexico	do	Dollar	1.04,75	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡	Gold and Silver.	Florin	.40,5	.38,5	....	....	....	....
Peru	Silver	Sol	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia	do	Ruble	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1896.	1898.
Austria-Hungary*.	Silver	Florin	$0.38,1	$0.34,1	....	....	....	....
Bolivia	do	Boliviano	.77,1	.69,1	$0.61,3	$0.51,6	$0.49,1	$0.42,4
Central America	do	Peso	.77,1	.69,1	.61,3	.51,6	.49,1	.41,4
Colombia	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Ecuador	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
India	do	Rupee	.36,6	.32,8	.29,2	.24,5	.23,3	.20,1
Japan§	do	Yen	.83,1	.74,5	.66,1	.55,6	.52,9	....
Mexico	do	Dollar	.83,7	.75	.66,6	.56	.53,3	.46
Peru	do	Sol	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Russia§	do	Ruble	.61,7	.55,3	.49,1	.41,3	.39,3	....
Tripoli	do	Mahbub of 20 piasters.	.69,5	.62.3	.55,3	.46,5	.44,3	....

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* See footnote, page xiii.

† The Egyptian pound became fixed in value at $4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

§ See footnote, table of fixed currencies.

C.—*Quarterly valuations of fluctuating currencies.*

Countries.	Monetary unit.	1900.				1901.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.	$0.42,7	$0.43,6	$0.43,8	$0.45,1	$0.46,8	$0.45,1	$0.43,6	$0.42,8
Central America.	Silver peso	.42,7	.43,6	.43,8	.45,1	.46,5	.45,1	.43,6	.42,8
China	Amoy tael	.69,1	.70,5	.70,9	.72,9	.75,7	.72,9	.70,5	.69,1
	Canton tael	.68,9	.70,3	.70,7	.72,7	.75,5	.72,7	.70,3	.68,9
	Chefoo tael	.66,1	.67,4	.67,8	.69,7	.72,4	.69,7	.67,4	.66,1
	Chinkiang tael	.67,5	.68,8	.69,3	.71,2	.74	.71,2	.68,8	.67,5
	Fuchau tael	.64	.65,2	.65,6	.67,4	.70,1	.67,5	.65,2	.64
	Haikwan tael	.70,3	.71,7	.72,1	.74,2	.77,1	.74,2	.71,7	.70,4
	Hankau tael	.64,7	.65,9	.66,3	.68,2	.70,9	.68,2	.65,9	.64,7
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.66,5	.67,7	.68,2	.70,1	.72,8	.70,1	.67,8	.66,5
	Niuchwang tael.	.64,8	.66,1	.66,5	.68,4	.71	.68,4	.66,1	.64,8
	Shanghai tael	.63,1	.64,4	.64,8	.66,6	.69,2	.66,6	.64,4	.63,2
	Swatow tael	.63,9	.65,1	.65,5	.67,4	.70	.67,4	.65,1	.63,9
	Takao tael	.69,6	.70,9	.71,4	.73,4	.76,2	.73,4	.70,9	.69,6
	Tientsin tael	.67	.68,3	.68,7	.70,7	.73,4	.70,7	.68,3	.67
Colombia	Silver peso	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1	.43,6	.42,8
Ecuador †	do	....	....	....	....	....	....	....	....
India	Silver rupee‡	.20,3	.20,7	.20,8	....	....	....	....	....
Mexico	Silver dollar	.46,4	.47,3	.47,6	.49	.50,9	.49	.49	.46,4
Persia	Silver kran	.07,9	.08	.08,1	.08,3	.08,6	.08,3	.08,3	.07,9
Peru †	Silver sol	.42,7	.43,6	.43,8	.48,7	....	....	....	....

Countries.	Monetary unit.	1902.				1903.	
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.
Bolivia	Silver boliviano.	$0.41,3	$0.40,3	$0.38,2	$0.38,4	$0.36,1	$0.35,2
Central America	Silver peso	.41,3	.40,3	.38,2	.38,4	.36,1	.35.2
China	Amoy tael	.66,9	.65,1	.61,8	.62	.58,4	.57
	Canton tael	.66,7	.64,9	.61,7	.61,9	.58,2	.56,8
	Chefoo tael	.63,9	.62,3	.59,1	.59,3	.55.8	.54,5
	Chinkiang tael	.65,3	.63,6	.60,4	.60,6	.57	.55,7
	Fuchau tael	.61,8	.60,2	.57,2	.57,4	.54	.52,7
	Haikwan tael	.68	.66,3	.62,9	.63,1	.59,4	.58
	Hankau tael	.62,6	.60,9	.57,9	.58	.54,6	.53,3
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.64,3	.62,6	.59,5	.59,6	.56,1	.54.8
	Niuchwang tael.	.62,7	.61,1	.58	.58,2	.53,3	.53.4
	Shanghai tael	.61,1	.59,5	.56,5	.56,7	.53,9	.52
	Swatow tael	.61,8	.60,2	.57,1	.57,3	.58,8	.52,6
	Takao tael	.67,3	.65,5	.62,2	.62,4	.56,6	.57,3
	Tientsin tael	.64,8	.63,1	.59,9	.60,1	.60,1	.55,2
Colombia	Silver peso	.41,3	.40,3	.38,2	.38,4	.36,1	.35,2
Mexico	Silver dollar	.44,9	.43,7	.41,5	.41,7	.39,2	.38,3
Persia	Silver kran	.07,6	.07,4	.07	.07,1	.06,6	.06,5

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* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† See footnote, table of fixed currencies.

‡ The sovereign is the standard coin of India, but the rupee is the money of account. See also table of fixed currencies.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal	4.422 gallons.
Ardeb	Egypt	7.6907 bushels.
Are	Metric	0.02471 acre.
Arobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1.12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	11.4 gallons.
Do	Spain (raisins)	100 pounds.
Berkovets	Russia	361.12 pounds.
Bongkal	India	832 grains.
Bouw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	529 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1.333⅓ (1⅓) pounds.
Do*	Japan	1.31 pounds.
Do	Java, Siam, and Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110.24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.46 pounds.
Chetvert	Russia	5.7748 bushels.
Chih	China	14 inches.

*More frequently called "kin." Among merchants in the treaty ports it equals 1.33⅓ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan	Sarawak	3,098 pounds.
Do	Siam (Koyan)	2,667 pounds.
Cuadra	Argentine Republic	4.2 acres.
Do	Paraguay	78.9 yards.
Do	Paraguay (square)	8.077 square feet.
Do	Uruguay	Nearly 2 acres.
Cubic meter	Metric	35.3 cubic feet.
Cwt. (hundredweight)	British	112 pounds.
Dessiatine	Russia	2.6997 acres.
Do	Spain	1.599 bushels.
Drachme	Greece	Half ounce.
Egyptian weights and measures	(*See* CONSULAR REPORTS No. 144.)	
Fanega (dry)	Central America	1.5745 bushels.
Do	Chile	2.575 bushels.
Do	Cuba	1.599 bushels.
Do	Mexico	1.54728 bushels.
Do	Morocco	Strike fanega, 70 lbs.; full fanega, 118 lbs.
Do	Uruguay (double)	7.776 bushels.
Do	Uruguay (single)	3.888 bushels.
Do	Venezuela	1.599 bushels.
Fanega (liquid)	Spain	16 gallons.
Feddan	Egypt	1.03 acres.
Frail (raisins)	Spain	50 pounds.
Frasco	Argentine Republic	2.5096 quarts.
Do	Mexico	2.5 quarts.
Frasila	Zanzibar	35 pounds.
Fuder	Luxemburg	264.17 gallons.
Funt	Russia	0 9028 pound.
Garnice	Russian Poland	0.88 gallon.
Gram	Metric	15.432 grains.
Hectare	do	2.471 acres.
Hectoliter:		
Dry	do	2.838 bushels.
Liquid	do	26.417 gallons.
Joch	Austria-Hungary	1.422 acres.
Ken	Japan	6 feet.
Kilogram (kilo)	Metric	2.2046 pounds.
Kilometer	do	0.621376 mile.
Klafter	Russia	216 cubic feet.
Koku	Japan	4.9629 bushels.
Korree	Russia	3.5 bushels.
Kwan	Japan	8.28 pounds.
Last	Belgium and Holland	85.134 bushels.
Do	England (dry malt)	82.52 bushels.
Do	Germany	2 metric tons (4,480 pounds).
Do	Prussia	112.29 bushels.
Do	Russian Poland	11⅜ bushels.
Do	Spain (salt)	4,760 pounds.
League (land)	Paraguay	4,633 acres.
Li	China	2,115 feet.
Libra (pound)	Argentine Republic	1.0127 pounds.
Do	Central America	1.043 pounds.
Do	Chile	1.014 pounds.
Do	Cuba	1.0161 pounds.
Do	Mexico	1.01465 pounds.
Do	Peru	1.0143 pounds.
Do	Portugal	1.011 pounds.
Do	Spain	1.0144 pounds.
Do	Uruguay	1.0143 pounds.
Do	Venezuela	1.0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter	Metric	1.0567 quarts.
Livre (pound)	Greece	1.1 pounds.
Do	Guiana	1.0791 pounds.
Load	England (timber)	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 superficial feet.
Manzana	Costa Rica	1½ acres.
Do	Nicaragua and Salvador	1.727 acres.
Marc	Bolivia	0.507 pound.
Maund	India	82 2/7 pounds.
Meter	Metric	39.37 inches.
Mil	Denmark	4.68 miles.
Do	Denmark (geographical)	4.61 miles.
Milla	Nicaragua and Honduras	1.1493 miles.
Morgen	Prussia	0.63 acre.
Oke	Egypt	2.7225 pounds.
Do	Greece	2.84 pounds.
Do	Hungary	3.0817 pounds.
Do	Turkey	2.82838 pounds.
Do	Hungary and Wallachia	2.5 pints.
Pic	Egypt	21¼ inches.
Picul	Borneo and Celebes	135.64 pounds.
Do	China, Japan, and Sumatra	133⅓ pounds.
Do	Java	135.1 pounds.
Do	Philippine Islands	137.9 pounds.
Pie	Argentine Republic	0.9478 foot.
Do	Spain	0.91407 foot.
Pik	Turkey	27.9 inches.
Pood	Russia	36.112 pounds
Pund (pound)	Denmark and Sweden	1.102 pounds.
Quarter	Great Britain	8.252 bushels.
Do	London (coal)	36 bushels.
Quintal	Argentine Republic	101.42 pounds.
Do	Brazil	130.06 pounds.
Do	Castile,* Chile, Mexico, and Peru	101.41 pounds.
Do	Greece	123.2 pounds.
Do	Newfoundland (fish)	112 pounds.
Do	Paraguay	100 pounds.
Do	Syria	125 pounds.
Do	Metric	220.46 pounds.
Rottle	Palestine	6 pounds.
Do	Syria	5¾ pounds.
Sagene	Russia	7 feet.
Salm	Malta	490 pounds.
Se	Japan	0.02451 acres.
Seer	India	1 pound 13 ounces.
Shaku	Japan	11.9305 inches.
Sho	do	1.6 quarts.
Standard (St. Petersburg)	Lumber measure	165 cubic feet.
Stone	British	14 pounds.
Suerte	Uruguay	2,700 cuadras (see cuadra).
Sun	Japan	1.193 inches.
Tael	Cochin China	590.75 grains (troy).
Tan	Japan	0.25 acre.
To	do	2 pecks.
Ton	Space measure	40 cubic feet.
Tonde (cereals)	Denmark	3.94783 bushels.
Tondeland	do	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo	Japan	6 feet square.
Tsun	China	1.41 inches.
Tunna	Sweden	4.5 bushels.
Tunnland	Sweden	1.22 acres.
Vara	Argentine Republic	34.1208 inches.
Do	Central America	32.87 inches.
Do	Chile and Peru	33.367 inches.
Do	Cuba	33.384 inches.
Do	Curaçao	33.375 inches.
Do	Mexico	33 inches.
Do	Paraguay	34 inches.
Do	Spain	0.914117 yard.
Do	Venezuela	33.384 inches.
Vedro	Russia	2.707 gallons.
Vergees	Isle of Jersey	71.1 square rods.
Verst	Russia	0.663 mile.
Vlocka	Russian Poland	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6418 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.
Decameter (10 meters) equals 393.7 inches.
Hectometer (100 meters) equals 328 feet 1 inch.
Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).
Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.
Are (100 square meters) equals 119.6 square yards.
Hectare (10,000 square meters) equals 2.471 acres.

CONSULAR REPORTS.

COMMERCE, MANUFACTURES, ETC.

Vol. LXXII. MAY, 1903. No. 272.

THE RUSSIAN PETROLEUM TRADE.

PRODUCTION OF CRUDE OIL IN THE BAKU FIELDS.

The crude-oil production of the Baku fields, for the first time since 1894, fell off last year, leaving 1901 the record year as far as the volume of production is concerned. The falling off was certainly not great, but it was a break in the monotony of steady increase which has been going on for eight years, resulting in more than doubling the production in that time.

The statistics show results only, and do not indicate any of the causes for the falling off or give any reliable basis upon which to predict the future. The undoubted cause of the decline in the production was the overproduction of 1901, which was brought about by the opening for drilling of considerable tracts of territory belonging to the Russian Government. The result of this overproduction was a decline in the price of crude oil to a figure which was in many cases less than the amount to be paid the Government as royalty on the territory—to a figure, almost the whole year through, at which the lessee of Government territory could not work without considerable loss. The falling off from 1901 in the amount of the production from this Government territory in 1902 was not great, but there was little or no drilling done on it and no new work commenced. Few producing wells were pumped in the territory where the royalty was excessive, and many of the wells which were drilling

TARIFF.

The Austrian duty on automobiles, it is said, is not sufficiently protective. It amounts to 75 gold florins ($36.49) per piece, with the additional duty on fine iron and steel ware of 15 gold florins ($7.31) on 220 pounds for the weight of the motor. For this reason, it is impossible to profitably undertake the building of motor carriages on foreign models in this country. As a consequence, only such factories as turn out specifically Austrian types, with electric motors chiefly, and styles that are not made abroad, can continue work, while the manufacturers who construct automobiles on foreign models are obliged to materially decrease their output, until a reform in the present tariff has been introduced.

STYLES AND PRICES.

The demand for large, heavy wagons has diminished, and the small, light carriage is now generally preferred. This is owing in no small measure to the lower cost of motor power for a lighter wagon. The prices of automobiles are very high, as much as $6,000 to $8,000 being paid for a really fast machine, while $2,000 to $4,000 is the average cost. The main obstacle to a lively business in this line is the small purchasing power of the public in this country. Besides, the love for sitting behind a team of good horses is deeply rooted in the popular mind. The poor roads in Austria are also mentioned as a hindrance.

The Austrian Automobile Club, of this city, makes it an object to hold annual automobile exhibitions and to arrange various kinds of races, which contribute materially to increase interest in this method of locomotion. It is expected that the great automobile race from Paris to this city will do much to popularize the motor vehicle. Hitherto, the sport has been confined almost entirely to the aristocracy and wealthier circles of society, and the automobile has hardly been put to practical use in a manner that would make it accessible to the public at large as a benefit and not as a luxury. But the Government has recently ordered six large and heavy wagons for military purposes from the Daimler Motor Works, of this city. These are constructed to carry 5,500 pounds, and will cost about $2,800 each. From the same company, the Austrian State railways have ordered automobile carriages for their narrow-gauge roads.

MOTOR CYCLES.

A really good field seems to be presented in Austria for the motor bicycle, and a pushing, energetic agent might exploit a promising market for American manufacturers. French motors (benzine) sell for $100 apiece, and can be attached to any bicycle. The complete motor bicycle ranges in price from $150 to $200. The duty on bicycles in Austria is 25 gold florins ($12.18) each; the further duty on the motor is the same as that for automobiles. The business in American automobiles in this city suffers for want of good representatives.

BELGIUM.

Consul-General G. F. Lincoln writes from Antwerp:

Since reporting on the vehicle industry in Belgium in 1900,* the automobile industry has developed to a considerable extent, though it may be regarded as still being in an experimental stage, and incessant efforts are being made to render the problem of self-propulsion more efficacious, more practical, and more economical. The cost of constructing, running, and maintaining the existing types of automobiles is still a great obstacle to their general adoption.

PRODUCTION.

It is difficult to obtain the exact figures of production and sale, owing to the fact that manufacturers in general claim to have a much larger output than is really the case. It is a fact, however, that certain concerns here are turning out from three to six carriages per week, and that this output is sold in advance. In this country, strenuous efforts have been made to come to the front, and manufacturers have gone to great expense in exhibiting both here and abroad, particularly in England and Holland.

STYLES.

Nearly all the Belgian makers have purchased French licenses or patents for the motors they use, and as a matter of fact little pertaining to the industry originated here. With regard to the styles adopted for the vehicles, though these are copied from the French, they compete successfully—the elegance and practicability of the carriages being quite equal to anything turned out in France or Germany. Still, a comparatively large number of machines are imported from France, inasmuch as for high speed and for racing purposes the French motor car still leads the market.

Manufacturers have nearly all abandoned the so-called "voiturette" (small carriage weighing less than 1,000 pounds). They have likewise given up the manufacture of motor tricycles, which they have replaced by the motor bicycle.

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*See Special Consular Reports, Vehicle Industry in Europe.

PRICES.

The carriages most in vogue are fitted with petroleum motors of from 6 to 12 horsepower, and sell at from $1,000 to $3,000; the favorite style being the carriage for four people, with very low wheels of equal size, made of hickory, wired wheels being out of date. Heavy carriages are no longer popular, even the 20-horsepower vehicles weighing less than 2,000 pounds.

MANUFACTURERS.

In addition to the firms mentioned in my report in 1900, Gobron & Drille, of Liege, and the Ateliers Vve. Math. Snoeck, of Ensival, near Verviers, are now making delivery wagons and heavy trucks. De Jong & Co., of Antwerp, are meeting with success with their motor cycle, known as the "Minerva;" Miesse & Co., of Brussels, are attracting considerable attention with a steam carriage, but as yet only a few are in use.

UNITED STATES TRADE.

There is only one American motor car known to any extent in Belgium, and that is run by steam. Though it operates very smoothly, it is yet a question as to whether its extreme lightness will stand the wear and tear of the roughly paved streets and highroads of the country. American manufacturers desirous of getting a foothold in the Belgian market will have to make the wheels, axles, springs, etc., of heavier and stronger material. The American steam car, however, would be far more popular were it possible to procure interchangeable parts in this country, for the manufacturers are equipped only to repair popular types of motors, and are disinclined to make alterations in their plants or do anything that would tend to the encouragement of foreign competition.

TARIFF.

The duty on automobiles of all descriptions in Belgium is 12 per cent ad valorem.

DENMARK.

The following has been received from Consul J. C. Freeman, of Copenhagen:

In March, 1901, there were but four automobiles in use in Denmark; in November, 1901, that number had increased to 100. At the exposition of motor cars held here in February, 35 machines were sold, and at the exposition in March last 50 more were disposed of. This indicates the state of trade at the present time.

American firms, with one exception, did not take advantage of the invitation extended them through this consulate in CONSULAR REPORTS for February, 1902,* to exhibit their machines in these expositions, and hence they did not reap the benefit of the sales.

UNITED STATES GOODS.

I may say that the wide track of most American machines, while contributing to the steadiness of the machines, renders them ill adapted to the narrow streets of many European cities—Copenhagen, for example. A narrower track would be considered a point of advantage here. The same applies in a degree to the country roads, although there are highways on which a wide track would be no objection.

I suppose that the reason American manufacturers did not exhibit at Copenhagen was that they were busy supplying the home market. When they are ready to give attention to Scandinavia, all they have to do is to send their machines here and sell them on their merits.

TARIFF.

The Danish customs prescribe a duty on automobiles of 10 per cent on the invoiced value, with freight added. Goods can be stored in the warehouses of the free harbor, Copenhagen, without payment of duty.

FRANCE.†

Consul-General J. K. Gowdy reports from Paris:

PRODUCTION.

The motor-car industry in France is flourishing, and automobiles are being manufactured in all the factories possible. Large numbers are being shipped to all parts of the world, the orders for England alone being almost sufficient to keep the various establishments busy for some months. Panhard & Levassor have received, for delivery in 1904, orders amounting to 2,500,000 francs ($482,500).

It can safely be said that France keeps the lead in this important industry. Motor cars are daily becoming more numerous on the streets of Paris, and it is calculated that there are fully 30,000 horseless carriages in circulation in this consular district.

Encouragement is perhaps given to the industry by the authorities in tolerating races and permitting touring at high speed on the public highways; and the excellent roads throughout the whole of France, together with the good hotel accommodations in the smallest towns, has tended to foster automobiling in this country.

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*Also in ADVANCE SHEETS No. 1217.

†See also "French automobile industry," ADVANCE SHEETS No. 1251; CONSULAR REPORTS No. 259 (April, 1902); "French automobile directory," ADVANCE SHEETS No. 1304; CONSULAR REPORTS No. 261 (June, 1902).

UNITED STATES GOODS: TARIFF.

It would be useless to state that there is a good opening in France for American-built motor cars. There are very few of foreign manufacture on the streets here, and perhaps 5 per cent are American; but fully 90 per cent of the cars now running are French. It would be possible for American makers to compete in France with the electric automobile, but as there is little convenience for recharging or for exchange of accumulators there are very few such carriages in use at present. The most popular are those with petroleum motor power, fired by an electric spark. The principal patents of this device are French. Therefore, unless our makers can introduce a car of an improved system, which will compete with the French in construction and in price, there is no great opening in France for American motor cars, especially in view of the duty, which is:

Carriages, other than for railways or tramways, weighing 125 kilograms (270 pounds) or more, per 100 kilograms (220 pounds), 60 francs ($11.58), general tariff.

Velocipedes and parts thereof, per 100 kilograms (220 pounds), 250 francs ($48.25), general tariff. Velocipedes worked by an essence or explosive motor, known in the trade under the names of "motor velocipedes" or "petroleum velocipedes," are subject to this duty on their total weight.

Engines, without boilers (gas, petroleum, hot air), less than 250 kilograms (550 pounds), per 100 kilograms (220 pounds), 30 francs ($5.79); more than 250 kilograms (552 pounds), per 100 kilograms (220 pounds), 18 francs ($3.47), general tariff.

AUTOMOBILE MANUFACTURERS IN PARIS.

Charron, Girardot & Voigt, 45 avenue de la Grande Armée.
R. Smith, agent, 22 avenue de la Grande Armée.
Aster, 33 boulevard Carnot, St. Denis, Seine.
Brouhot & Cie., Vierzon, Cher.
E. Buchet, 15 rue Greffulhe, Levallois, Seine.
Cohondot, 166 quai Jemmapes.
Cie Française d'Automobiles, 7 rue Darboy (Onfray system).
Cie Internationale d'Automobiles, 56 rue de la Victoire.
Cottereau, agent, 241 boulevard Pereire.
Crouan, 51 avenue de la Grande, Armée.
Darracq et Cie., 33 quai de Suresnes, Suresnes, Seine.
Delahaye, 10 rue du Banquier.

Dietrich et Cie., 25 rue Brunel.
H. Dubray, 111 bis, boulevard Ménilmontant.
Columbia, 54 avenue Montaigne.
Gardner-Serpollet, 9 rue Stendhal.
Gillet, Forest et Cie., 23 quai du Président Carnot, St. Cloud.
Gobron & Brillié, 13 quai de Boulogne, Boulogne sur Seine.
Dion, Bouton et Cie., 24 quai National, Puteaux, Seine.
Decauville, 13 boulevard Malesherbes.
G. Richard, 23 avenue de la Grande Armée.
Peugeot, 83 boulevard Gouvion St. Cyr.
Société Scotte, 56 rue de Provence.
Mors, 48 rue du Theater.
Bevallette agents, 21 avenue des Champs Elysées.
Clement, quai Michelet, Levallois, Seine.
Panhard & Levassor, 19 avenue d'Ivry.
Renault Frères, 51 rue Etienne Marcel.
Léon Bollée (Société des Voiturettes), 163 avenue Victor Hugo.
Société "Equipage Electrique," 8 rue d'Alsace, Levallois, Seine.
Société Générale de construction d'Automobiles, 3 rue Scribe.
Société Anonyme d'Automobiles, 1 quai National, Púteaux, Seine.

GERMANY.

Consul-General F. H. Mason writes from Berlin:

In reply to Department instructions, I have to state that I reported on this subject in 1900, and my report was published in December of that year.* I have also sent a somewhat lengthy report on "Automobilism in Prussia,"† in which an account is given of the automobile exposition which was held in Berlin from May 15 to 26, inclusive, and a general description of the situation in northern Germany in respect to the manufacture and use of motor vehicles. This, it is hoped, will be accepted as covering the inquiry.

TARIFF.

The import duty on motor vehicles under the present German tariff is 8 marks per 100 kilograms ($1.90 per 220 pounds). The tariff bill now under discussion before the Reichstag will, if enacted in its present form, increase the duty to a graded scale ranging from 20 marks ($4.76) per 100 kilograms for vehicles weighing 1 metric ton or more to a rate of $35.70 per 100 kilograms for vehicles weighing 50 kilograms (110 pounds) or less.

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*See Special Consular Reports, Vehicle Industry in Europe.

†See ADVANCE SHEETS No. 1377; CONSULAR REPORTS No. 263 (August, 1902).

The complete schedule as proposed for motor carriages and motor bicycles is as follows, according to net weight:

Description.	Duty per 100 kilograms.*	
	Marks.	
50 kilograms or less	150	$35.70
50 to 100 kilograms	120	28.56
100 to 250 kilograms	90	21.42
250 to 500 kilograms	60	14.28
500 to 1,000 kilograms	40	9.52
1,000 kilograms or over	20	4.76

* 100 kilograms=220.46 pounds.

This revised tariff, if enacted, will not take effect before January, 1904.

Consul E. A. Creevey, of Glauchau, says:

One obstacle to the introduction of American automobiles into this country is the difficulty in having repairs made. German and Saxon laws, I am informed, are not the same, and those wishing to sell machines here must familiarize themselves with the requirements. A locomobile recently delivered in this city can not be used, because the boiler is so constructed that it can not be examined. One of the requirements of the Saxon laws is that the boiler must be so constructed that the outer shell can be tested at any time. All who saw the machine were pleased with its handsome appearance, and it would have found many purchasers if it had been constructed in accordance with the law. For every boiler imported, there must also be filed with the Saxon officials complete drawings in duplicate, and American drawings are invariably rejected, because the dimensions are shown in feet and inches and the pressure in pounds instead of in centimeters and kilograms.

GREAT BRITAIN.

Vice-Consul-General R. Westacott, of London, says:

There is no duty on importations of automobiles into Great Britain. A report on this subject was transmitted to the Department in 1900.* To that report may now be added that the demand for motor vehicles of all kinds has greatly advanced and is constantly increasing. For American vehicles, there is an excellent prospect, as it is reported that British manufacturers are unable to meet the demand and have put up prices. Vehicles of moderate horsepower, if offered at fair prices, should find a ready sale.

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* See Special Consular Reports, Vehicle Industry in Europe.

GREECE.

Consul D. E. McGinley writes from Athens:

TARIFF.

The tariff charged on automobiles imported into Greece is 10 per cent ad valorem.

STYLES.

There are but two automobiles in this consular district, both of French manufacture, and, as far as I can learn, there is little or no demand for others at the present time. The Greeks are slow to take up new inventions; and those who can afford to purchase automobiles have a decided leaning toward French products. Therefore, at this date, I can see no opening here for automobiles manufactured in the United States. None are made in Greece.

ITALY.

Consul-General H. de Castro, of Rome, sends the following:

The automobile industry is developing very slowly in Italy. There are a few manufacturers, but hardly any make the motors. These are imported largely from France, the makers contenting themselves with mounting the carriages. Most owners of automobiles purchase them in France. Some have also been imported from America.

The cost of these vehicles is still too high for their use to be general; only the richer classes, so far, employ them.

The industry being a new one and subject to changes due to daily improvements and inventions, there is little inducement for manufacturers to attempt the production of an article so expensive and so risky, and therefore the industry remains confined to the foreign houses which were the initiators.

I see no reason why American automobile manufacturers should not have as good an opening in Italy as the French and German, if prices and conditions are satisfactory. The only way to introduce American automobiles here would be to have the merchandise at hand, in order that users might see and appreciate it. It is not possible to open a market by circulars or catalogues.

NETHERLANDS.

Consul F. D. Hill reports from Amsterdam:

STYLES IN USE.

The field here is now held by French and Belgian makers. The Dion, Panhard, Peugeot, Mors, and Darracq are the best known French, and the Dechamps and Herstal the best known Belgian machines.

Manufacturers in the United States have been making efforts to compete in steam automobiles, but these are thought to be too lightly built and of too complicated mechanism.

A writer in a recent issue of a local trade journal states that Dutch automobiles are of inferior quality.

Only in a few cities are there opportunities for filling the accumulators, which restricts for the present the use of electric machines. Prospects for steam mobiles seem more favorable, but manufacturers must deliver the machines with detachable tires, or rims suited for European tires. Under no circumstances must they use single tubes, as these do not sell on the Continent. Up to the present, no steam mobiles have been used in the Netherlands. It will be necessary to send a sample first, since every automobile must have a license here, and this permit is not granted until the machine has been examined by a Government officer.

Mr. J. Leonard Lang, one of the largest automobile and bicycle dealers of this city, is inclined to receive a sample machine, if the manufacturers will send it c. i. f. Rotterdam. He will pay transportation and other expenses and have the machine examined under custom-house seal. If the license be not granted, he will deliver the machine f. o. b. Rotterdam or at the station here, to have it sent to one of the branch offices of the factory on the Continent. If manufacturers accept this offer, they ought to send good advertising material at the same time. Prices must not be higher than 2,000 florins ($804) retail.

TARIFF.

The import duty is 5 per cent ad valorem.

EXPENSES.

The expenses of a small automobile of 4 horsepower, used four times per week for about three hours daily, are 550 florins ($221.10) per year, including stable, benzine, oil, one new set of tires, and all small costs.

UNITED STATES TRADE.

Mr. W. F. Holcombe, of Holcombe & Co., writes this office as follows:

There is at present no American automobile trade here, and while American makes are somewhat higher in price than those of continental manufacture, still it can not be said that that would prove a serious drawback. One objection is, however, the model. The style of machine most preferred seems to be the one known as the "Duc," something like an open wagonette—one wide seat in front and two side seats in rear, with room, as a rule, for six persons.

The fuel used is benzine; the tires are all double tubes, on the Dunlop or continental system, while the machine itself is much heavier than the American.

MOTOR CYCLES.

American manufacturers will do more business in motor cycles just now than in automobiles; here, however, the price is a consideration. A first-class motor cycle of continental manufacture can be purchased by the factor (wholesaler) for 225 florins ($90) f. o. b. here, while the same class of machine of American make will cost f. o. b. New York from $130 to $150. This is, however, the field for several years to come, and being popular here, coming as it does within the reach of so many more persons, the cycle is bound to have a sale far larger than that of the automobile.

The manner of introduction is exceedingly important. In order to get at this trade, the manufacturer must make up his mind at the start that there are two sides to the question, and instead of demanding "cash against documents in New York," he must be willing to give his agent some assistance and treat him in the same manner as he would were he placing the agency in the United States. There is no more risk in doing this here than there, if proper precautions are used.

Appoint a reliable firm, with an established trade; give a machine in consignment, and agree to fill orders on the base of one-third with order and two-thirds on receipt and examination of goods on this side. The manufacturer who does this will get the business.

Mr. Adler, of 581–583 Prinsengracht, Amsterdam, who is the head of one of the largest houses in this line in Holland, being greatly interested in the future of American goods here, would consider taking an agency.

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Consul-General S. Listoe, of Rotterdam, writes:

CONSUMPTION.

Owing to the rules and regulations restricting the automobile traffic, the demand for automobiles is very small. Most of the automobiles sold are French patterns; even those imported from the United States are said to be copied from French patterns. It must be said, however, that the American improvements on the latter have lately attracted some attention and favorable comment; but as long as the freight rates for automobiles from the United States are as high as they are at the present time, the competition with France and Germany, whence freights are very low, will be exceedingly difficult, if not impossible.

The superiority of American workmanship and the better quality of the steel used in American automobile parts is recognized, and such parts are, to a limited extent, in demand with the automobile manufacturers here. When automobiles become more general in this country than they are now, the use of American parts will also greatly increase. The American automobile parts now used by the Dutch manufacturers are of the very best class of goods produced.

There are only about 200 automobiles in use in the Netherlands, but there are a large number of motor cycles.

DEALERS.

The principal importers of cycles, parts, and automobiles are:

A. van der Laan & Co. (parts), Rotterdam.
John Diehl, jr., The Hague.
Willem Remmers & Co., Amsterdam.
Verwey & Lugard, The Hague.
L. J. Otto, Dordrecht.
J. J. Goettsch, Utrecht.
Van Ewyk, Amsterdam.
W. J. Stokvis, Arnhem.
Leonard Lang, Amsterdam.
R. S. Stokvis & Sons, Rotterdam.
T. Englebert, Leiden.
M. Adler, Amsterdam.
C. P. Meulendyk, Rotterdam.
G. S. Kaufman Landheer, Rotterdam.
Van Gelder Brothers, Rotterdam.
J. A. Brakman, Rotterdam.
M. L. Noordyk, Rotterdam.
Bus & Co., Rotterdam.

MANUFACTURERS.

The principal manufacturers are:

Anton Aarts, Dongen.
A. van Altena, Haarlem.
H. B. Beaufort, Haarlem.
Industrieele Maatschappy Trompenburg, Amsterdam.
Rywielfabriek Simplex, Amsterdam.
Bingham & Co., Rotterdam.
A. Fongers, Rotterdam.
A. Smits, Rotterdam.

RUSSIA.

Consul-General W. R. Holloway reports from St. Petersburg:

TARIFF.

The duty on automobiles in Russia ranges between 18 and 198 rubles ($9.27 to $101.97), according to size.

OUTPUT.

The only firm manufacturing automobiles here now is the Anonymous Velocipede Company, of St. Petersburg. The machines are operated by naphtha, but their general use in Russia is not probable in the near future, as the roads are too rough.

SPAIN.

Consul-General J. G. Lay, of Barcelona, reports:

TARIFF.

The import duty* on automobiles is very high, as the following extract from the tariff will show:

Description.	From countries with commercial treaties.		From countries with no treaty.	
	*Pesetas.**		*Pesetas.**	
Carriages or cars with 4 seats	1,000.00	$193.00	1,300.00	$250.90
Carriages with 2 seats and omnibuses with more than 15	750.00	144.75	975.00	188.18
Carriages with 2 or 4 wheels, with or without hood, and any number of seats; omnibus not exceeding 15 seats and carriages not included in the foregoing classes	312.50	60.31	406.25	78.40

* 1 peseta = 19.3 cents par value.

After paying the above-mentioned custom-house duty, owners of automobiles are obliged to pay the following annual taxes on their vehicles: Annual tax on carriage, 80 pesetas ($15.40); annual extra tax per seat, 9.40 pesetas ($1.81); annual extra tax of 50 per cent additional to municipal tax; annual extra tax of 20 per cent additional to municipal tax (impuesto transitorio).

STYLES.

It will be seen that little encouragement is given to the sale of motor vehicles in Spain. The automobiles most favored here are those with gasoline motors, because of the facility with which the combustible can be obtained. Some six or eight American steam and electric automobiles have been brought here, but can not be introduced because of the general dislike to steam motors, on account of the danger of explosion, fire, etc., while the difficulties in this country in the way of being able to recharge the batteries render the use of electric motors impossible, excepting within the large cities.

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* This duty is payable in gold.

The majority of cars imported are French, from the following well-known makers: Mars, Clement, Gladiator, Panhard & Levassor, Darracq, De Dion Bouton, Renault, and others in smaller numbers. One or two English cars have also been imported; also some Benz automobiles, and a very few of other German makes. In Spain, there are now four firms that make automobiles of the model known here as the "tonneau," with four seats and of 6 and 8 horsepower. The price is from 5,000 to 6,500 pesetas* ($714 to $928). Of course, the cars are not perfect yet, as the industry is in its infancy.

MARKET FOR AUTOMOBILES.

The general opinion is that automobiles would be widely used in Spain if, for about 3,500 pesetas ($500), a reliable car could be placed on the market, with two seats and of 4½ horsepower; and a car with four seats and 8 horsepower for about 5,000 pesetas ($714). As it is, foreign makers would have no difficulty now in finding a sale for good motor cars at 7,000 pesetas ($1,000). Nearly all the cars running in Spain are private property and are used for pleasure, though in some districts motor omnibuses are employed for carrying passengers between towns with no railroad communications; and there are some half a dozen motor vans on trial for trade purposes.

There are several firms engaged in the buying and selling of automobiles, but reliable information respecting their financial standing should be gained before transacting business with them. The best firms already hold the agencies of the foregoing makers, and they are naturally interested in favoring those makes.

Most of the cars imported into Spain are of 6½, 8, and 10 horsepower; however, among the wealthy classes, larger cars are being purchased—namely, of 16, 20, and 24 horsepower—while in Madrid one car of 60 horsepower has been bought.

SWEDEN.

Vice-Consul-General A. Georgii sends the following from Stockholm:

TARIFF.

The duty in Sweden on automobiles or motor carriages is 15 per cent ad valorem, as per amount of invoice, or if the customs authorities should not consider that true and correct the value is fixed by a survey.

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* 1 peseta=14.28 cents at the present market value.

The duty on parts of machinery is 10 per cent ad valorem, upon similar conditions.

MANUFACTURERS: MARKET.

The principal, and (so to speak) the only, manufacturers of motor cars in this country are Södertelje Verkståder, Limited, Södertelje, and Söderbloms Gjuteri A. B., Eskilstuna.

The use of motor cars is making little progress in this country; some baggage cars are employed in this city to carry parcels and heavier goods, and a few may also be seen on the country roads. A very limited number of motor carriages is employed here; perhaps three or four are running at present.

SWITZERLAND.

Consul G. Gifford writes from Basel:

TARIFF.

Automobiles pay a duty of 20 francs for each metric centner of weight, or at the rate of about $40 a ton. On a motor bicycle, the rate of duty is three and a half times larger. In both cases, however, the weight of the motor proper is assessed at the rate of only 4 francs (77 cents) per centner (220 pounds), if it can be easily determined; but customs officers will not accept as proofs of this weight the verbal declarations of the owner.

REGULATIONS.

There are at present no uniform regulations touching automobiles in this country, and the sport is subject to considerable inconvenience in consequence. The speed limit changes from place to place at the will of the local police. There are even said to be routes in the Cantons of Valais and the Grisons where the passage of such carriages is absolutely forbidden, so that tourists are forced to make a considerable detour in order to pass through the country. But this confusion will probably soon disappear, as negotiations in regard to the adoption of uniform regulations are already in progress. The Automobile Club Suisse, whose headquarters are at Geneva, is making vigorous efforts to hasten the action of the authorities.

AUTOMOBILES IN CANADA.

Consul-General J. L. Bittinger reports from Montreal May 5, 1902:

There are no automobiles in Montreal. In fact, there are but few in the Dominion. The Postmaster-General has recently purchased two, and they are employed in the mail-delivery service in Toronto. He has stated that their use will be discontinued unless the streets are improved.

The streets of Montreal are so narrow and in such bad condition that their use is deemed impracticable. The general impression prevails that they can not come into employment here for some years.

Consul A. E. Smith writes from Victoria, May 9, 1902:

TARIFF.

The Canadian customs authorities have decided to list automobiles as machines, on which the import duty is 25 per cent.

MARKET CONDITIONS.

No automobiles are kept in stock by any dealer in Victoria, or in any other town on Vancouver Island.

Only two automobiles have ever entered this consular district. Both of them were of American manufacture. One was a good machine, owned by a traveling minstrel company, which remained here but one day and then took the automobile with them to the United States. The other is a secondhand machine, valued at $400, imported by a rancher living a few miles from the city. The motive power is steam, generated by gasoline fuel.

So far, no orders have been placed for automobiles by any residents of Victoria, nor does there appear any indication of a demand for such machines at present, though there has been some talk of establishing a line to catch the tourist business on the scenic road around the city. The roads here are very fine and would seem well adapted for use by automobiles. It is quite probable that were an active canvass made orders could be secured, as there is considerable wealth among the people of Victoria, and a large leisure class.

AUTOMOBILES IN LATIN AMERICA.

ARGENTINA.

Consul J. M. Ayers, of Rosario, writes:

TARIFF.

The duties on automobiles here are 25 per cent of the declared value.

MARKET CONDITIONS.

There are at present in Rosario but two of these vehicles, one being from the United States (earlier model) and one from France.

The article is so expensive as yet that it is within the reach only of persons of large means, many of whom in this country do not readily adopt new inventions. A doubt of their safe manipulation will also retard their general introduction. Yet I should say that within the next year it would be of great advantage to our manufacturers of these vehicles to have an active representative here in the person of a Spanish-speaking salesman, having some of the automobiles with him so as to show their working and thereby call attention to their excellence. By such a course, American machines would have a good chance of sale to these people, who, when convinced of superiority, make liberal customers.

At the present time, it would not be advisable to make this effort, for this country is just passing through a year of crop failures which forbid indulgence in any extravagances or experiments. The outlook for the coming year is bright.

BRAZIL.

The following has been received from Consul-General Eugene Seeger, of Rio de Janeiro:

TARIFF.

The automobile has not yet found its place on the tariff list of Brazil. When coming from foreign shores, it will have to enter incognito, under the general title of "machinas" and pay 50 per cent ad valorem.

MARKET CONDITIONS.

I do not think that there is much of a future for the automobile within the limits of the Brazilian Republic. Climate and topography, as well as the conditions of the roads and streets and the individuality of the native population, militate against it.

On the country roads, the ox cart will easily hold its own during the present generation against such new-fangled contrivances as the automobile, and in the cities the mediæval condition of the streets and thoroughfares preclude the general use of any vehicle whose speed is apt to contrast with the conservatism of the tropical mule. In the Tropics, swift locomotion and the sense of comfort and pleasure are considered incompatible.

In my travels throughout Brazil, in the vast country between the Amazon and the River Plata, I encountered but three automobiles—one in Para and two in Petropolis.

I know of only one Brazilian city where the automobile could find proper conditions—Sao Paulo, which has a few good roads and streets, an agreeable climate, an industrial and progressive population, and a leisure class.

CHILE.

Consul R. E. Mansfield reports from Valparaiso:

There is no law upon the statute books of Chile relating to automobiles. This is probably due to the fact that there are no vehicles of this class in use in the country. There is no record of a single automobile having been imported into Chile, and inquiry reveals the fact that there is no demand for this vehicle, and that not one is to be found in the country.

The absence of this class of vehicles is perhaps due to the fact that there are few improved country roads in Chile. Much of the country is mountainous—some of it inaccessible. The streets in the cities and towns are paved with cobblestones, are very rough and uneven, and are not suited to automobiles.

Modern vehicles, such as coaches, carriages, traps, etc., are not manufactured in Chile. They are imported from the United States, France, and England, the largest number, according to statistics, coming from the United States. There is a duty of 60 per cent on all vehicles imported into Chile.

MEXICO.

Consul-General A. D. Barlow writes from Mexico City:

TARIFF.

Customs duties on automobiles imported into Mexico are the same as on carriages intended to be drawn by horses, viz:

On first 100 kilograms (220.4 pounds), 60 cents (Mexican) per kilogram, net weight; from 100 to 250 kilograms (220.4 to 551 pounds), 55 cents per kilogram, net weight; from 250 to 500 kilograms (551 to 1,102 pounds), 50 cents per kilogram, net weight; from 500 to 750 kilograms (1,102 to 1,653 pounds), 45 cents per kilogram, net weight; from 750 to 1,000 kilograms (1,653 to 2,204 pounds), 40 cents per kilogram, net weight; excess over 1,000 kilograms (2,204 pounds), 35 cents per kilogram, net weight. To the above is to be added the 10½ per cent levied on all dutiable goods for port works, etc.

To illustrate: An automobile weighing 600 kilograms (1,322.6 pounds) would pay the following duties:

Description.	Duty.	
	Mexican.	
First 100 kilograms (220.4 pounds), at 60 cents per kilogram	$60.00	$25.50
Second 150 kilograms (330.7 pounds), at 55 cents per kilogram	82.50	35.06
Third 250 kilograms (551.1 pounds), at 50 cents per kilogram	125.00	53.13
Fourth 100 kilograms (220.4 pounds), at 45 cents per kilogram	45.00	19.13
	312.50	132.82
Plus 10½ per cent	32.81	13.94
Total	345.31	147.76

MARKET CONDITIONS.

There are in use in this city about 50 automobiles. Most of them are electric machines of American manufacture, the largest agency here (that of the Pope Manufacturing Company, of Hartford, Conn.) having sold most of them. There are two or three gasoline automobiles of French origin in use here, and several steam automobiles of American manufacture. The electric automobiles in use are of all styles and prices, some very handsome ones being owned by the wealthier people and ordinary ones by others. Some public omnibuses and wagonettes were run by a local company, but more as an advertisement than as a business venture, and they were discontinued in public service after a short time. The sale of automobiles, especially those of American manufacture, has been pushed as energetically here as the conditions would permit. Owing to the high rate of exchange, the duty, and freight, automobiles are very expensive. Only the wealthier classes are able to afford them.

The principal drawback to the use of automobiles in Mexico is a lack of good roads. There are no country roads in the Republic suitable for their use, and few in the cities. Except in three or four of the larger cities, as Mexico City, Guadalajara, Puebla, and Monterey, there can be no sale for automobiles until there are better roads. Even in this city the streets and drives suitable for the use of automobiles are very limited, probably not exceeding a dozen miles in all. Outside of this city, there are not more than two or three automobiles in use in the whole Republic, and at present there is no possibility of creating a market for them. A few more may be sold here, but probably not many until the good roads are extended.

AUTOMOBILES IN ASIA.

BRITISH INDIA.

Consul W. T. Fee writes from Bombay:

The automobile industry at this port and generally throughout this consular district, which is coextensive with the western half of India, is quite in its infancy. There are, probably, not more than a half dozen automobiles in this district—one of American make, one made in Bombay, and the balance either English or French importations.

TARIFF.

The duty on automobiles imported from any foreign country into India is 5 per cent ad valorem.

MARKET CONDITIONS.

The streets of Bombay are excellent, as are generally the main roads throughout India. They are thoroughly macadamized, or metaled, and made smooth by heavy rollers. Constant attention is given to them, uneven places are filled up, and all small, loose stones are removed from the surface. India being a tropical country, there is no freezing to upheave them; hence they wear smooth and solid.

Horses are generally imported, and the climatic conditions are very trying for them; therefore, I may safely state that few countries offer more attractions for the use of automobiles than does India, and they will doubtless, in a short time, come into as general employment as the bicycle of to-day.

STYLES.

As to the kind and styles of automobiles best suited to India, I would urge our manufacturers and exporters to carefully study the conditions of the country and needs of the people.

Electricity is not in general use in western India, and until the cities are lighted by it and it becomes common as a motive power in tramways and factories, making supply stations more numerous, the inconvenience of recharging the storage batteries of the present electric automobile would be so great as to forbid its introduction.

These local conditions will certainly soon be changed, and when they do the electric automobile is the kind that will win favor in India.

After consulting a number of probable importers of the motor car and those who have given the subject some study, it would seem that the automobile best suited to India would be that propelled by gasoline, capable of carrying two or more persons, with a canopy, or, better still, a victoria top as a protection against the rains and the rays of the tropical sun. This is necessary in India. It should also have a seat extended in the rear, or a step, to provide a place for a "syce" (a native servant). It should be strongly built, with as little complication as possible.

A high rate of speed is not desirable; 12 to 15 miles per hour, at the most, is probably all that would be ever required, and it should be capable of climbing ordinary grades.

The price would be a controlling feature in its sale; it should be as low as is consistent with quality and durability.

Most of the hill stations or resorts in India are located on high elevations, varying from a few to 40 miles from the railroad station, and, while the roads are metaled and are generally good, the present means of transportation is usually very inferior. At such places, there are inviting openings for the automobile, to be used by individuals and for public conveyances.

GASOLINE.

Gasoline retails in this city for about 20 rupees ($7.50) per drum of 8 imperial gallons. It is imported by the Standard Oil Company, of New York, in steel drums, and is called "petrol," or "motor spirits." Being classed by the local government as an explosive, a license is required, at a cost of a small fee, if it is used in quantities larger than 1 gallon.

STEAM MOTORS.

There is quite a sentiment here among motor-car people in favor of the automobile with steam as a motive power, generated by kerosene as a fuel. Kerosene is about as cheap and as common in India as in America, owing, no doubt, to the strong competition of American, Russian, and Burma oil in the market. The steam (kerosene fuel) motor cars would have in their favor this strong point of reasonably cheap fuel.

IMPORTERS.

The following-named concerns are giving their attention to the importation and sale of the automobile. I add to the names, respectively, the kind of motive power of the automobile handled:

The New York Export and Import Company, of Cedar street, New York City, with a thriving branch on Hummum street, Bombay; kerosene and electricity.

J. A. Kirkbride & Co., Tamarind lane, Bombay; kerosene and petrol, or motor spirits.

Vatcha Brothers, Girgaum, Bombay; steam motor.

F. B. Thanawalla, Kalbadevi road, Bombay; electricity.

Turner, Hoar & Co., Elphinstone circle, Bombay, handle the "Reading motor car," a steam automobile adapted to burn kerosene oil for fuel, using the Clarkson & Capel oil burner.

The Motor Transport and Supply Company, agents for Shaw, Wallace & Co., of Calcutta, propose establishing an agency in Bombay for the kerosene-fuel steam automobile.

CHINA.

Consul John Fowler, of Chefoo, says:

Outside of the foreign settlements of Shanghai, Tientsin, Hankau, and possibly one or two other smaller ones, I doubt if a carriage of any description could be used on the streets and roads of Shantung; therefore there is no market in this district for automobiles, nor do I think that there will be for a long time to come.

Consul H. B. Miller reports from Niuchwang:

The tariff on automobiles coming into Manchuria through Niuchwang would be the regular Chinese duty of 5 per cent. If brought into Port Arthur or Dalny, they would come in free of all duty.

It is possible that a few might be sold to Russians in Dalny, Port Arthur, or Harbin.

Kuntz & Albers, at Dalny, Port Arthur, and Harbin, or the American Trading Company, at Dalny or Port Arthur, would be the best agents.

STRAITS SETTLEMENTS.

The following has been received from Consul-General O. F. Williams, of Singapore:

The cities of Singapore and Penang are the only large towns in this colony, and both are on islands made more or less rugged by mountains or high hills, Singapore rising to 519 feet and Penang 2,724 feet, thus being inaccessible in parts to vehicles.

Singapore Island contains only 225 square miles, and but 6 per cent of this is redeemed from primeval jungle; much the same may be said of Penang.

There are in Singapore two automobiles, not much used and much abused. Recently, the Sultan of Johore—who has residences here and also across the straits in Johore—brought a large automobile from Europe; but it is very noisy, and complaints are increasing against it.

A great number of jinrikishas are in use in every city and town of the colony. Last year, 19,414 jinrikishas were licensed in Singapore alone, and as each license runs for four months about 5,000 of these man-drawn carriages are in constant employment. In the entire colony, there are only some 460 miles of improved roads, and nearly one-half are in the cities, leaving about 230 miles of rural roads.

In the Federated Malay States, under the governmental tutelage of Great Britain, good roads are few. In Selangor, rich Malays and Chinese own a few automobiles, but they are simply fads. In the Federated Malay States, the principal industries are tin mining and lumber cutting. General agriculture is limited, and the bull cart is the common vehicle.

TARIFF.

So far as customs duties are concerned, all ports are free to imports. The only duties collected are on exports, usually 10 per cent ad valorem.

I do not think conditions favor trade in automobiles in this colony or its dependencies.

AUTOMOBILES IN AUSTRALASIA.

NEW SOUTH WALES.

Mr. O. H. Baker, consul at Sydney, says:

In and about Sydney, there are hilly and rough roads. In the most populous parts of the city, the streets are narrow. Steam, electric, and cable trams, heavily loaded traffic wagons, and private vehicles contest for passageway, so that the pleasure of automobile riding in these parts is much lessened.

MACHINES IN USE.

In the suburbs, the roads are not inviting, yet there is quite a number of these machines in use here—14 of French make, 1 German, 4 Winton (American), and 1 locomobile (American). One of these is propelled by steam and 19 by gasoline.

There are now on hand for sale 12 steam, 5 electric, and 5 gasoline automobiles.

There are no automobiles manufactured, so far as I know, in Australia, nor is there a great demand for them at present prices.

Some prejudice has been excited against the motor car in Sydney, from the fact that one style is noisy, frightening horses as it passes.

It is suggested that the American manufacturer, in aiming at the least weight possible, has largely sacrified the strength necessary to stand the strain on Australian roads. This is especially true of the axle, spring, and frame. There should be some improvement devised by which the machine could be depended on to make the journey for which it is charged without filling the air with unpleasant odors or making so much noise.

The Woods' electric vehicles have been given a fair trial here, but, owing to the scarcity of charging facilities, have proven a failure.

STYLE DEMANDED.

There would, I think, be a demand for the following:

1. A strong hill climber, capable of standing the strain on rough roads, with capacity for three or four persons.
2. A delivery wagon, with and without canopy, of from half a ton to 1 ton capacity.
3. A vehicle that would carry five persons and 4 or 5 cwts. o' mail bags over rough, hilly roads, the undergear being as high from the roads as possible.

TARIFF AND LAWS.

The duty on automobiles throughout Australia is 20 per cent ad valorem. This may, however, be revised, as the Senate has yet to pass upon that part of the tariff.

There are no State, county, or city laws of interest to automobile manufacturers and users.

Manufacturers, dealers, or users of automobiles are not required to take out a license or to register.

NEW ZEALAND.

Vice-Consul L. A. Bachelder, of Auckland, reports:

TARIFF.

The customs duty on automobiles is 20 per cent ad valorem, and the same rate is charged on finished or partly finished parts of same, including weldless steel tubing cut to short lengths.

The engines, if packed separately from the carriage, are duty free; also rubber tires, pneumatic tires, outside covers, and inner tubes, rubber and cork handles, drop forgings and stampings, ball bearings, weldless steel tubes in full lengths, rims, forks, and spokes in the rough. During the past year, two machines have been running in Auckland at various times, exhibited by the importers, but no private individuals have so far bought any. One of these is a locomobile manufactured by the Locomobile Manufacturing Company of the United States. The other is of French make and was found not powerful enough for the hills and bad roads in North Island. It was finally sold to go to Christ Church, South Island, and according to report it has given good satisfaction there. There appears to be very little demand here for these machines, in part on account of the cost, and also because of the bad condition of the roads and the hilly country. Dealers in a similar line of business say that they would not stock them.

There are, it is estimated, about 20 carriages of this kind running in South Island.

VICTORIA.

Consul-General J. P. Bray writes from Melbourne:

The market for automobiles is very limited, the Australian people considering motor cars as only in the experimental stage and not to be depended on for practical purposes. Prices, also, are so high that they will not easily be persuaded to purchase cars to prove the contrary for themselves. There are very few motor cars to be seen here, for the foregoing reasons, although several well-known makes are represented and have been advertised. I feel certain that for some time to come firms introducing motors will have an uphill task, and they probably will not reap the full benefit of their efforts for years.

Even if prospects were better, the fact must be borne in mind by our manufacturers that there is a duty of 20 per cent on imported motor cars, and stimulated by such an advantage, in addition to the heavy transit charges from the United States to Australia, the local manufacture of them, which has already been commenced by several parties (as yet in a small way), would no doubt increase with the demand.

AUTOMOBILES IN CAPE COLONY.

Consul-General W. R. Bigham reports from Cape Town:

Automobiles here are called motor cars; and, although this business is practically in its infancy, there are a few horseless vehicles to be seen on the streets of this city, and I am told the same is true of other cities on the coast. Owing to the unsettled condition of this country on account of the war, but few have reached the interior.

The military have used some American steam-motor cars (the

Toledo car taking the lead in number) and they have given great satisfaction.

Difficulty is experienced in getting orders filled properly and in having the goods delivered at the ports of this far-away country. It is claimed that both American and European manufacturers have been unable to fill orders promptly, aside from taking care of their home trade, and do not seem to wish to make much of an effort to get trade so far away.

FUEL.

Gasoline is almost unknown away from coast cities, and it can only be procured in three places in this city. All steamships reserve the right to throw it overboard if they encounter a storm; for, if one of the cans or other vessels in which it is shipped should be broken by the pitching of the ship and the air permeated with the gas, it would result in an explosion by coming in contact with the fire under the boilers or the lights at night.

Many shipments have gone into the sea from this cause, thus preventing the merchants in this and other countries from receiving their expected stock. This makes it very expensive and uncertain of supply. Kerosene (called paraffin here) would be much better for creating motive power than gasoline, for it can be purchased of any grocer throughout this country at about one-half the price. Kerosene retails here, by the case containing two 4-gallon cans, at 35 cents per gallon.

STYLES.

A few motor bicycles are in use here, mostly of American manufacture. With regard to motor cars, I am told that the strongly built high-horsepower vehicles are the most successful. On South African roads, high horsepower is required in ascending the long, steep hills. Medium or low priced vehicles sell best. The harbor authorities in this city have a motor dray wagon in use.

As there is very little food for horses grown within 500 miles of this city and railroad freight is very high, it is found cheaper to ship grain and hay from the Argentine Republic, Australia, or the United States than to get it from the interior, and this increases the expense of keeping horses. A liveryman boards a carriage horse for $1.82 per day, and, as they are fed entirely on imported feed, that is considered a fair price. I think any motive power that will take the place of a horse should succeed here.

TARIFF.

There is no duty on the machinery of an automobile, but the vehicle part is appraised at about what the value of a carriage of the same capacity would be and an ad valorem duty of 25 per cent is collected on this valuation.

LAWS.

There is no license required for automobiles used here, except if used for hire or to transport passengers (as cabs or landaus about the city).

I can find no other laws which apply to automobiles in this colony. It is possible that some cities have enacted ordinances on this subject, but I do not know of any. All vehicles here are obliged to carry side lights after nightfall.

I am largely indebted for my information to Mr. H. L. Jenkins, an enterprising American, who is now in the United States buying a stock of automobiles. His firm has introduced nearly all of these goods that have been landed in Cape Town.

AUTOMOBILES IN THE CANARY ISLANDS.

Consul S. Berliner, of Teneriffe, says:

A company is about to be formed here, styled the "Teneriffe Motor Car Company," the object being to introduce a number of motor cars to ply between the different towns in the island. A car to seat 15 passengers will run between Laguna and Orotava, a distance of 20 miles, and a supplementary car will run between Orotava and Icod, a distance of about 15 miles. The time of both will be so arranged as to connect with the electric tramway now running between Santa Cruz and Laguna.

It is hoped that during the summer another car will be included in the service, to run between Santa Cruz and Guimar, a distance of 20 miles.

The roads are adapted for motor cars; they are well and solidly built.

The motor cars will be furnished by the well-known firm of Paris, MM. Panhard & Levassor, the horsepower varying from 7 to 15 and the cost from $2,500 to $3,000.

In my opinion, these cars are heavy and clumsy looking, and I believe an opportunity is here presented for enterprising American firms, for I think there can be little doubt that the service will prove remunerative and will be further extended.

AUTOMOBILE REGULATIONS IN EUROPE.*

AUSTRIA.

Consul-General C. B. Hurst, of Vienna, reports:

The regulations in force at Vienna for the operation of automobiles or motor wheels are very stringent. Only such automobiles or motor wheels may be driven in the public streets as have been officially inspected and approved as to their motor system, transmission of power, brakes, steering apparatus, and safety contrivances. Such approbation is obtained either for the various vehicles singly, or by request of the manufacturer, for a certain type or model after which a number of vehicles is to be constructed. This approbation may be withdrawn for important reasons. The inspection is made by a commission of experts appointed by the local authorities. Application for these certificates of approbation or permits must contain:

1. Name and residence of the applicant.
2. A technical description, in two copies, of the type or model to be inspected and comprising: (*a*) General description of the vehicle; (*b*) motor system; (*c*) source of power for latter; (*d*) capacity of motor expressed in horsepower; (*e*) description of transmission and steering apparatus; (*f*) number and kind of brake devices, as well as gear of same; (*g*) description of lighting and signal devices; (*h*) distance between the wheels, weight of carriage, gauge, width of fellies, covering of fellies, greatest length, breadth, and height of wagon; (*i*) number and adhesion weight of the braked wheels; (*k*) in explosive motors, description of igniting and cooling contrivances; (*l*) in electric motors, description of accumulators and dynamos employed.
3. Two copies of diagram of vehicle, one-fifth natural size, showing motor with transmission, steering, and braking apparatus.
4. Name and residence of manufacturer.

It is on the basis of this technical description and a trial trip of the vehicle in question, or model for a certain type, that the inspecting commission passes judgment and declares the automobile fit or not for public traffic. In the former case, the applicant receives an official certificate of approbation which contains the information asked for under 1, 2, and 4, and also a diagram of the vehicle. If the automobile is one of a certain system, the official number given to the same is added. When approbation is refused, the reasons therefor are officially made known.

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*Some of the following reports are in reply to a Department instruction sent at the instance of the Commissioners of the District of Columbia, to whom ADVANCE SHEETS have been forwarded.

The manufacturer of the system approved, or his representatives in this country, must, on delivery of the automobile, give the purchaser a copy of the official certificate of approbation containing the manufacturer's running number of the vehicle and certification that it corresponds exactly to the approved type.

Before operating his vehicle, every owner of an automobile must have the official certificate of approbation visaed by the police authorities. On change of ownership, a like visa is obligatory on the new possessor.

Every automobile—the auto bicycle excepted—must be provided with two strong, independently working brakes, one of which acts directly on the driving wheels. This must be so geared as to render it possible for the driver, after setting the brake, to make the wheels glide. One of the two brakes must be worked by the foot. To secure vehicles from rolling back when ascending a hill, they must be provided with a reliable catch pin which can be worked by the driver while under way; further, on level roads, they must have a reversing contrivance, which makes a slow, backward motion possible. The steering apparatus (handle bar, lever, or wheel), the lever for increasing speed, the movement regulator, signal bell, and other safety devices must all be within easy reach of the driver's seat, so that, while under way, he can give his undivided attention to the road in front of him, and can manage all these parts without averting his eyes. Their arrangement must be so contrived that he can easily locate each, even in the dark, so there may be no danger that, by mistaking one for another, he may run into any peril.

The benzine, petroleum, or gas tanks of automobiles with explosive motors must be constructed of strong material, closed hermetically, and so placed in the vehicle that they are totally isolated from the motor and can not be influenced by its heat development, by the heat of the escaping gases, or the rays of the sun. Accumulators, also, must be so securely built into the vehicle as to make any spilling of acids impossible.

Every automobile and motor wheel must be provided with a distinctly audible signal contrivance. The use of such special signals is prohibited to all other street vehicles. Each motor wheel must have at least one, and each automobile at least two, well-burning signal lamps made of colorless glass. In automobiles, these must mark the side boundaries of the wheels and throw their light so far ahead that the road in front of the driver is visible to a distance of at least 22½ yards (20 meters). The driver's view in the direction of movement must not be obstructed by any parts of the vehicle or by passengers.

Each automobile must be able to describe a circle having a radius of 6⅔ yards (6 meters), and each motor wheel one with a radius of 3⅓ yards (3 meters). Each automobile and motor wheel must display, on a conspicuous part, the name of the manufacturing firm, together with the official number of the type or system and the progressive manufacturing number.

The driver must not leave his automobile or motor wheel before he has stopped his machine and set the brake. He must also take heed that his vehicle is not set into motion by unauthorized persons. The rate of speed in inclosed spaces must not be greater than that of a horse at a good trot. In open places, the speed may be moderately accelerated, but only on level, broad, and straight roads, along which there is little traffic. Speed must be decreased and, if necessary, the automobile or motor wheel be altogether stopped if its approach is seen to frighten horses or other animals, thus giving rise to confusion and accidents. In all busy and narrow streets, around sharp curves, over crossings and bridges, and on inclines, the speed must be reduced to the pace of a foot walker, and increased again only when the driver is certain that it may be done in perfect safety. The warning signal must always be given in time.

Racing by automobiles and motor wheels in the public streets is prohibited, as are also trial trips by types of vehicles not yet approved, unless by special consent of the authorities, the conditions being fixed in each case.

The owner of an automobile or motor wheel is responsible for his vehicle being managed only by persons fully qualified for this task, and he is answerable for any accident or damages resulting from incapacity, oversight, or recklessness of the driver. The driver must always carry with him the certificate of approbation of the vehicle he is in and, on request, be ready to show it to the police. When the latter make objection to anything about an automobile or a motor wheel, the driver is obliged to stop his machine forthwith.

Any violation, under ordinary conditions, of the above regulations which leads to the injury of any person is treated as a transgression, punishable by imprisonment for from one to six months; if death of the injured person ensues, such violation is treated as a crime, punishable by imprisonment for from six months to one year. Under dangerous conditions, the violation of these regulations, when it leads to injury of a person, is treated as a transgression, punishable by imprisonment for from six months to two years; if death of the injured person ensues, it is treated as a crime, punishable by rigid imprisonment up to three years. When, by violation of said regulations, no damages of any kind have resulted, the fact is nevertheless treated as a transgression, punishable by a fine of from $2 to $20 or imprisonment for from three days to three months.

For freight automobiles, there are the additional regulations that when wagon and load exceed a weight of 6,600 pounds (3,000 kilograms), the wheel fellies must be 4 inches broad; when wagon and load exceed a weight of 9,900 pounds (4,500 kilograms), the fellies must be 6 inches broad. Freight automobiles having a total weight of 16,000 pounds (7,300 kilograms) are, as a rule, not allowed to traverse public streets and roads nor the bridges that occur on the way. Driving over bridges is, moreover, limited to the bearing power of the same, usually recorded on the bridges.

BELGIUM.

The following has been received from Consul-General G. F. Lincoln, at Antwerp:

The following regulations concerning the running of automobiles are in force in Antwerp:

ARTICLE 1. It is not permitted to drive automobiles or motor cycles on sidewalks, alleys, avenues, or other portions of public promenades exclusively reserved for pedestrians.

ART. 2. Drivers of automobiles or motor cycles are prohibited from running their machines at a greater speed than that of the ordinary trot of a horse, or from running in circles on public thoroughfares.

At points where the circulation of vehicles is active, their speed must not exceed that of a slow trot.

In narrow streets, at corners, crossroads, and elsewhere, where the traffic is intense, drivers must slacken speed, and in such places not proceed more rapidly than foot passengers.

They must give way to pedestrians and to vehicles for children or invalids.

At corners they must keep off from the sidewalks and, as far as possible, keep the middle of the road.

ART. 3. Drivers of automobiles, motor cycles, and other vehicles, as well as cyclists, must keep to the right for the purpose of leaving sufficient space for the passage of other vehicles.

Drivers of automobiles or motor cycles, when desiring to pass another, must do so on the left. This rule applies as well to ordinary vehicles, horses, and bicycles.

ART. 4. At nightfall, automobiles and motor cycles must carry in front and behind a lamp fitted with transparent glass, which must show light on three sides, indicating clearly, in red or black letters, the number of the license prescribed by law.

ART. 5. Drivers must not, under any circumstances, leave their automobiles or motor cycles on the public thoroughfares without a skilled attendant.

ART. 6. Infractions of the foregoing regulations will be punished by police penalties.

Executed at Antwerp, Belgium, May 17, 1900.

(Signed) JAN VAN RYSWYCK,
Mayor-President.

Consul G. W. Roosevelt, of Brussels, says:

I give below translation of the regulations in force at Brussels for the operation of automobiles:

CHAPTER I.

ARTICLE 1. All automobiles and motor cycles must be furnished with two metal plates conspicuously affixed, one on the front and the other on the back, bearing a regulation number taken from a special register for the whole of Belgium. These plates are delivered, on payment of their value, by the agents of the administration designated by the Minister of Agriculture and Public Works.

All vehicles must carry, from nightfall until morning, at least one well-lighted lamp, throwing the rays of light forward. Automobiles and motor cycles must carry, in addition, a lamp fixed on the back of the vehicle, in such manner as to clearly illuminate the number mentioned in the preceding paragraph.

Velocipedes, road locomotives, automobiles, and motor cycles must be provided with a sounding apparatus, the sound of which may be heard at a distance of at least 50 meters (54.6 yards).

Vehicles provided with rubber tires must, in time of snow, be provided with bells to warn pedestrians.

Automobiles, motor cycles, road locomotives, and velocipedes must be provided with brakes, susceptible of responding instantaneously and of wedging the wheels.

CHAPTER II.

ART. 16. The speed of automobiles and motor cycles shall never exceed in the open country 50 kilometers (31 miles) per hour, and in traversing cities 10 kilometers (6.2 miles) per hour.

ART. 17. Conductors of road locomotives, private railway locomotives, automobiles, and velocipedes are obliged to slow up, and even stop, their vehicles at the approach of teams, or carriage, draft, or saddle horses showing signs of fear.

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CHAPTER IV.

Measures of execution.

ART. 29. The following are specially charged with the execution of the present regulations:

Engineers, bridge, and roadway guards.

Engineer inspectors, assistant engineers, commissaries of paving, sewers, etc., and superintendents of provincial technical service.

Road laborers and other agents appointed to inspect the roadways.

Agents appointed to superintend and open and close bridges.

Excise and customs employees.

The national mounted police.

Local police functionaries and agents.

ART. 30. In case of obstruction, accident or menaced accident, or to permit the accomplishment of the conditions prescribed by the present regulations, the conductors of vehicles and draft or saddle horses must stop whenever so requested by an agent empowered with the execution of the present regulations, and bearing the insignia of his office or provided with his commission.

FRANCE.

The French regulations for the use of automobiles were reported by Consul-General J. K. Gowdy, of Paris, Consul-General R. P. Skinner, of Marseilles, and Consul A. M. Thackara, of Havre. Mr. Thackara says:

The general regulations governing the use of automobiles on the public highways of France are set forth in a Presidential decree dated March 10, 1899, and in an explanatory circular dated April 10, 1899, sent by the Minister of Public Works to the prefects of the different Departments.

The decree confers upon the municipal authorities of France the right to issue additional regulations, whenever it is considered by them necessary to do so, to further insure personal safety in their various cities, especially where the streets are narrow and the traffic is great. Many such municipal regulations are in force. It is therefore necessary for an automobilist, before starting on a tour through France, to familiarize himself not only with the requirements of the Presidential decree explained by the ministerial circular, but also with the special ordinances issued by the prefects and mayors.

The Presidential decree in extenso is as follows:

DECREE RELATING TO THE RULES FOR THE CIRCULATION OF AUTOMOBILES.

The President of the French Republic, by the advice of the Ministers of the Interior and Public Works and the Council of State, decrees:

Article 1. The circulation of all vehicles propelled by mechanical motors, except railroad carriages, on the public highways will be governed by the provisions set forth in this decree.

Section I.—Automobiles circulating singly.

TITLE I.—MEASURES OF SAFETY.

Art. 2. Reservoirs, tubes, or any other parts which contain explosive or inflammable products will be constructed in such a manner as to prevent the escape or dropping of any product which might cause an explosion or fire.

Art. 3. The different parts of the automobile should be constructed in such a manner not to offer any particular cause of danger, not to frighten horses, and not to emit disagreeable odors.

Art. 4. The stearing gear shall be arranged so that the operator can manipulate it and at the same time watch the road ahead. The automobile must be built so that there will be no obstruction to the operator's view ahead, the gauges must be so placed as to be easily seen by him, and they must be illuminated at night.

Art. 5. The automobile must be constructed so that it will respond quickly to the stearing gear and be able to make short turns. The stearing gear must give every evidence of having been solidly built. Automobiles weighing more than 250 kilograms (651 pounds) must have a motor by which the carriage can move backward.

ART. 6. The automobile should be provided with two distinct systems of brakes, each one of which shall be sufficiently powerful to control automatically the speed of the motor or to stop it. At least one of the systems shall act directly on the wheels or on the hubs and shall be able to instantly stop the wheels. One of the brake systems, or a special apparatus, must be able to stop all backward movements of the automobile.

When an automobile is constructed with bogie wheels, one of the brake systems should operate on the rear wheels of the vehicle.

ART. 7. A certificate that automobiles fulfill all the requirements of the above provisions will be given by the Government engineers upon the request of the manufacturer or owner. For automobiles constructed in France, the manufacturer should ask to have verified all the different types of machines he has made or will make. For automobiles of foreign manufacture, the examination should be made before using them in France, at any place in the territory selected by the owner of the automobile. When the engineer officer delegated for the purpose shall have satisfied himself that the automobile fulfills all the requirements of these prescriptions, he shall issue a certificate, one copy of which shall be sent either to the manufacturer or to the owner, as the case may be. The manufacturer shall be allowed to deliver to the public any number of automobiles of the types which have been recognized as fulfilling all the legal requirements. He will give each automobile a number in order in the series to which it belongs, and should give to the purchaser a copy of the certificate issued by the Government engineers and another certificate stating that the automobile delivered is entirely in conformity with the type.

Each automobile must carry in characters easily distinguished:

1. The name of the manufacturer, the type, and the order number in the series of the type.

2. The name and residence of the owner.

In case of the refusal of the Government engineer to issue a certificate that an automobile fulfills the requirements of the law, the interested parties can make an appeal to the Minister of Public Works, who will decide after consultation with the "central committee on steam engines."

TITLE II.—PLACING IN USE.

ART. 8. Every owner of an automobile, before using it on the public highways, should make a declaration to the prefect of the Department in which he resides, which shall be acknowledged by a receipt. This declaration will at once be referred to the Government engineers.

ART. 9. The declaration will set forth the name and residence of the owner. It will be accompanied by the certificate prescribed in article 7.

ART. 10. A declaration made in one Department is sufficient for the whole of France.

TITLE III.—OPERATING AND CIRCULATING.

ART. 11. No one can operate an automobile who is not provided with a "certificate of capacity," issued by the prefect of the Department in which he resides, on the recommendation of the Government engineers. A special certificate of capacity will be established for the operators of motor cycles weighing less than 150 kilograms (331 pounds).

ART. 12. The operator of an automobile will be required to show, at the request of any competent authority:

1. His "certificate of capacity."

2. The receipt for the declaration of his machine.

ART. 13. The various moving parts of the motor, the safety apparatus, the steering mechanism, the brakes, the power transmissions, and the axles should always be kept in good condition. The operator should, by frequent trials, see that both systems of brakes are in good working order.

ART. 14. The operator of an automobile should always have the speed of his machine under control. He should slow up, or even stop, whenever the automobile could cause an accident, create a disturbance, or interfere with the circulation. The speed should be lowered to that of a man walking when the way is narrow or encumbered. In no case shall the speed exceed 30 kilometers (18.75 miles) an hour in the open country and 20 kilometers (12.5 miles) in the thickly settled districts, with the exception contained in article 31.

ART. 15. The approach of an automobile, if necessary, should be signaled by a trumpet. All automobiles should carry in front a white light and a green light.

ART. 16. An operator should never leave his carriage without having taken all necessary precautions to prevent accidents or unlooked-for starting of the machine and to suppress all noise of the motor.

Section II.—Automobiles drawing other vehicles.

TITLE IV.—SAFETY MEASURES.

ART. 17. Automobiles drawing other vehicles may circulate on the public highways only after fulfilling all the requirements prescribed for motors, levers, brakes, and steering gear in articles 2, 3, 4, 5, and 6 of the present decree.

ART. 18. Independent of the brakes required by article 6, each vehicle drawn must have a separate effective and powerful system of brakes, which can either be worked by the conductor of the automobile from his position or by a special conductor.

ART. 19. The vehicles drawn must carry the name and address of the owner.

ART. 20. No automobiles intended to draw other vehicles can be put in service without the authorization of the prefect, given on the recommendation of the Government engineers. The engineer sent to examine the automobiles must make practical tests to see that they do not offer any particular cause of danger when used in the manner intended. The authorization given after these trials will be good in all the Departments of France.

TITLE V.—PLACING IN USE.

ART. 21. No one shall use an automobile to draw other vehicles in any Department without an authorization from the prefect of the Department, issued upon the recommendation of the Government engineers in charge of the highways. The demand for such an authorization should state:

1. The routes and roads the petitioner has the intention of following.
2. The weight of the automobile and each of the vehicles loaded, and the maximum load per axle.
3. The ordinary number of wagons drawn and the total length of the train.

ART. 22. The authorization shall indicate the particular measures of safety which the conductor must take, independent of the general requirements of these rules. The owners may appeal from the decision of the prefect to the Minister of Public Works, who, after consulting with the "central committee of steam engineers," will render a final decision.

TITLE VI.—OPERATING AND CIRCULATING.

ART. 23. At night, every train must carry a red light behind, besides the white and green lights provided for in article 15.

ART. 24. The speed of trains must not exceed 20 kilometers (12.5 miles) an hour in the open country and 10 kilometers (6.25 miles) an hour in the thickly settled districts.

Art. 25. When the brakes of the vehicles drawn are not operated by the conductor of the train, there must be special brakemen to tend the brakes, whose number must be in proportion to the size and speed of the train and the steepness of the route. In all cases, sufficient precautions must be taken to prevent the train from getting adrift and running backward.

Art. 26. The stopping of trains upon the public highways must in no case interfere with the traffic or obstruct the entrance to any property. Stopping places for passengers will be designated in a prefectoral decree.

Art. 27. The rate of speed, the running and keeping in order of the automobiles and vehicles, must be in conformity with the prescriptions of articles 11, 12, 13, the first two paragraphs of article 14, and of articles 15 and 16 of this decree.

Art. 28. The provisions of this decree, with the exception of those of articles 18 to 27, will be applicable to an automobile drawing a small carriage of which the weight, passenger included, shall not exceed 200 kilograms (441 pounds), provided the brake system on the automobile is sufficiently effective to control both the automobile and the carriage.

Section III.

TITLE VII.—GENERAL RULES.

Art. 29. Besides the provisions of this decree, all automobiles must follow the general regulations governing traffic on public highways.

Art. 30. Motors and other generating apparatus of automobiles are amenable to the laws governing other similar apparatus, which are already in force or may be hereafter enacted.

Art. 31. Automobile races can only be run upon the public highways after obtaining a special permission from each of the prefects interested, which is granted upon the recommendation of the chief road inspectors. Besides the permission above mentioned, the organizers of the race must obtain, at least eight days in advance, the consent of the mayors of each of the towns through which the course may pass. The speed may exceed 30 kilometers (18.75 miles) per hour in the open country, but in no case can it exceed 20 kilometers (12.5 miles) in the thickly settled districts.

Art. 32. After two violations of the law in one year, the "certificate of capacity" issued by virtue of article 11 of this decree, upon the recommendation of the Government engineers, may be withdrawn by a prefectoral decree, the holder of the certificate having been heard in his defense.

Art. 33. Violations of the foregoing regulations will be brought before the proper courts of justice, conformably to the laws now in force or which may hereafter be enacted.

Art. 34. The instructions given by the present decree to the prefects of Departments are to be enforced by the prefect of police throughout his district.

Art. 35. The Ministers of the Interior and of Public Works, each one in that which concerns him, are intrusted with the execution of this decree, which will be published in the Journal Officiel and inserted in the Bulletin des Lois.

Done in Paris March 10, 1899.

(Signed) EMILE LOUBET.

By the President of the Republic, the President of the Council, Minister of the Interior:

(Signed) CHARLES DUPUY.
(Signed) C. KRANZ,
Minister of Public Works.

The circular sent by the Minister of Public Works to the prefects is a lengthy paper, for the most part devoted to detailed instructions to the Government engineers for their guidance in the inspection of automobiles and in the examination of petitioners for certificates of capacity.

HAVRE.

The local ordinance for the regulation of automobiles in the precincts of the city of Havre, dated February 10, 1901, is as follows:

ARTICLE 1. The speed of automobiles circulating in the territory of the city of Havre shall not in any case exceed 10 kilometers (6.25 miles) an hour. At the turning of streets, of parks, or of quays, the speed must not be greater than that fixed for public carriages—that is to say, than that of a horse walking.

ART. 2. No automobile carriage can circulate in the territory of the city of Havre without being provided with a number. This number will be inscribed in arabic figures at least 15 centimeters (5.9 inches) high and 3 centimeters (1.8 inches) wide, on a metallic plate. The figures will be painted in white upon a colored background, and they should be distinctly readable at a distance of 50 meters (54.68 yards). The numbered plate will be fixed upon the rear panel of the automobiles. For carriages not having panels, the plate must be securely fastened to the rear of the vehicle in such a way as to be always visible. It should be in a vertical position.

ART. 3. Anyone wishing to use an automobile in the limits of Havre will be obliged to make a declaration at the city hall, which must be accompanied by the "receipt of declaration" and "certificate of capacity" provided for in articles 8 and 11 of the decree of March 10, 1899.

There will be delivered to the applicant a receipt for the declaration and a number corresponding to each automobile declared, for which a fixed price of 1.50 francs (29 cents) each will be charged.

ART. 4. Automobiles which merely pass through the city or remain for a period not exceeding three days do not come under the provisions of paragraph 1 of the preceding article; but the operators of these vehicles, upon their entrance into the city, must provide themselves with a numbered plate, which will be delivered to them in the octroi offices at the entrance of the city by the officers connected with these offices, upon the production of the "receipt of declaration" and of the "certificate of capacity" delivered by prefectoral authority, and upon the payment of a sum representing the value of the plate (1.50 francs). A receipt for this sum will be given.

The said plate must be placed as near as possible in the same position as specified in article 2 above mentioned, so that the number can always be easily seen. Upon leaving the city, the automobilists can return the plate at any of the city octroi stations, when the money will be refunded.

ART. 5. Everyone using an automobile in the city of Havre, if called upon to do so by the police authorities, must stop immediately, and, if required, must produce either the receipt of the declaration made at the city hall, as provided for in article 3, or the receipt delivered at the octroi office, as per article 4.

ART. 6. The preceding provisions are applicable to all vehicles mentioned in the decree of March 10, 1899. All violations of the provisions will be prosecuted according to law.

ART. 7. The chief of police, the director of the octroi, and the tax collector are charged to see that the provisions of this ordinance are carried out.

GERMANY.

BERLIN.

Consul-General F. H. Mason sends the following:

The police authorities of this city have recently announced a very elaborate code of regulations, the principal requirements of which are the following:

All motor carriages driven in the streets of Berlin must be provided with effective and easily worked steering gear, and must have two independent and effective brakes, either of which must be capable of stopping the vehicle on asphalt pavement, from the full permitted speed, within a distance of 8 meters (about 26 feet). Every motor carriage must be able to turn round in a street 10 meters (32 feet) in width.

All excessive noise, smoke, steam, or odors are prohibited. This regulation, if rigidly enforced, will probably prevent the use of certain types of hydrocarbon motors, which cause a strong vibration, are noisy, and leave behind a trail of offensive odor from the imperfectly consumed gasoline.

All motor carriages must carry a bell with which warning is to be given—although excessive ringing is prohibited—and two lanterns, which when lighted illuminate the road at night to a distance of 20 meters (63 feet).

The speed within city limits shall in no case exceed 15 kilometers (9.32 miles) per hour, and must be relatively diminished at dusk and at all times on crowded, curving, or slippery streets, or when crossing bridges or narrow portions of a thoroughfare.

Every automobile owned in Berlin must carry visibly displayed a plate, bearing a number, issued by the police; also the name of the maker, owner, and the weight and horsepower of the machine. Machines owned by nonresidents of Berlin may be temporarily used here, provided their drivers are able to show an official police certificate from their place of residence elsewhere in Germany. Similar certificates, "visaed" by the German police officials, are requisite to enable a foreigner to use his automobile in Berlin.

The requirements as to each driver involve that he must be more than 18 years of age and have a certificate of competency from a driving school or a public expert, and provide that carelessness or negligence in the use of his machine may be punished by temporary or permanent suspension of his license. He is also held responsible for the condition of his automobile. Where the vehicle is owned by a person other than the driver, the owner is held responsible for both automobile and driver. The latter must be registered with the machine, and in case of a change of driver or location the owner must report it to the police.

When an automobile is temporarily left in a public street unattended by owner or driver, the machine and brake must be locked so as to prevent it being stolen or used by an unauthorized person. Motor carriages used as cabs or omnibuses are subject, in addition to the foregoing special ordinance, to the general regulations which apply to all public vehicles.

A signal must be given with the bell at each street crossing, but signals shall always cease when horses or other animals are frightened thereby, and under such circumstances the speed of the motor vehicle is to be reduced.

Violation of these regulations may be punished by fine not exceeding 60 marks ($14.28) and imprisonment not to exceed fourteen days.

FRANKFORT.

Consul-General Richard Guenther sends translation of the police regulations on this subject:

Paragraph 1.

Automobiles which do not run on tracks are subject to the following rules in addition to the provisions of sections 3, 4, 6–12, 20–22, and 26–43 of the street police regulations of November 7, 1899.

Paragraph 2.

Every automobile must be so constructed that it can be instantaneously stopped.

Paragraph 3.

On the left side of every automobile used in public thoroughfares the place of residence, Christian name and surname, or the firm name of the owner must be given, where it can be easily seen, in clear and ineffaceable letters. Automobiles belonging to the postal or military authorities, or to persons residing beyond the limits of this governmental district, which are brought within the same only temporarily, are excepted from this requirement.

Paragraph 4.

Automobiles must not pass vehicles drawn by horses or beasts of burden, saddle horses, droves of cattle, etc., at a speed greater than the slow trot of a horse.

The speed of automobiles approaching vehicles, horses, and cattle (as specified above) from behind must not be greater than is absolutely necessary in order to pass them.

If vehicles, horses, or cattle, as above specified, are stopped in order to permit automobiles to pass, the latter must not pass them with a greater speed than that of a walking horse.

Paragraph 5.

Automobiles which have passed vehicles, horses, or cattle, as above specified, must only gradually increase the speed prescribed in paragraph 4.

Paragraph 6.

The speed of automobiles on public highways in the country must not exceed 10 meters (39.37 feet) per second, in the absence of special police permission.

Paragraph 7.

Automobiles must signal, not only in overtaking, but also when they have not been noticed by vehicles, riders, droves of cattle, or pedestrians whom they intend to pass. All unnecessary or unduly noisy signaling is forbidden.

Paragraph 8.

The conductor of an automobile must not leave his machine without having taken the necessary precautions to prevent its resuming its motion during his absence.

Paragraph 9.

Restrictions of the use of public highways which do not apply also to other vehicles can not be imposed on automobiles, except with the consent of the governmental president.

Paragraph 10.

Violations of the provisions of paragraphs 2–8 will be punished in each case by a fine not exceeding 60 marks ($15), or by imprisonment in case the fine is not paid.

Paragraph 11.

These regulations will be in operation on and after February 16, 1900, on which date section 19 of the police regulations of February 11, 1896, relative to the use of bicycles, will lose its force and be withdrawn.

SAXONY.

Consul J. F. Monaghan, of Chemnitz, reports:

Manufacturers of automobiles in the United States will be interested in the requirements which the laws of Saxony place upon their use. Before being permitted to run upon the public highways, automobiles must be inspected by designated authorities. If found to conform with the laws, the owner receives a certificate to that effect and a distinguishing number, which must be readable at a distance of 15 meters (50 feet). Every automobile must have attached to it a plate stating the name of the manufacturer, the factory number, the horsepower of the engine, and the weight of the entire machine. It must have two strong white lights attached to the front, capable of lighting the path for a distance of 15 meters (50 feet), and one on the back, placed so as to illuminate the inspection number. It must be supplied with a "signal horn," possessing no unnecessarily loud or startling sound, and with a tone readily distinguishable from the whistle of a German locomotive or fire engine. The automobile must be in good running condition, easily guided, and must possess two rapidly working and certain brakes, operated independently of each other. There must be a lever or other arrangement by which the machine may be thrown out of gear in an instant. The exhaust of steam or gas must be placed as inconspicuously as possible. Automobiles must not make disturbing noises, produce oppressive odors, or develop smoke or steam in a startling manner. Every machine weighing upward of 250 kilograms (550 pounds) must be supplied with backward steering gears. The mechanisms for guiding, braking, setting out of gear, as well as for signaling, must be so placed and the levers so arranged that the person in charge may manipulate any of them without turning his gaze from the road ahead and without the possibility of a mistake. The front part of the automobile must be so constructed that the driver may have a full and open view of the street. Where steam power is used, the construction of the boiler must conform in every respect with the requirements of the law governing movable boilers, some of which also apply to stationary boilers.

The walls of boilers, as well as the flues and steam pipes, where their diameter exceeds that of 25 centimeters (9.8 inches) inside measure, in case of cylindrical forms, may not be made of cast iron. Sheet brass may only be used in case of flues and steam pipes of less than 10 centimeters (3.9 inches) in diameter. The highest flues must lie at least 10 centimeters below the low-water line, except where their diameter is less than 10 centimeters or where the boiler is of such construction that the water-covered surface of the boiler which comes in contact with the fire is, in case of natural draft, 20 times, and, in case of artificial draft, 40 times, the area of the fire grates. Every boiler must have at least two independently acting pumps, each of which can alone meet the greatest demand for water. There must be a water glass, and also an independent water gauge for the determination of the water level. Where one and the same pipe supplies both glass and gauge, its cross section must be at least 60 square centimeters (9.3 square inches) and its diameter 87.5 millimeters (3.4 inches). Trial cocks must be placed at the low-water line, which must be plainly indicated on the gauge. Movable boilers must have at least two safety valves, and stationary boilers at least one. Every boiler with a maximum pressure of less than 5 atmospheres is subjected to two separate tests of twice its full pressure; if of less than 10 atmospheres maximum pressure, to a test of one and one-half times its greatest pressure; if of over 10 atmospheres, to a test exceeding the designated pressure by 5 atmospheres. During these tests, the boilers must retain their form and remain water-tight, although fine spray or pearls of water may appear. Every boiler must have attached to it, so as to be plainly visible, the manufacturer's sign, giving his name, the factory number, and the year of manufacture. The mere fact that a boiler is known to have been constructed in accordance with law does not permit of its use without inspection by the proper authorities, as the owner may at any time be called upon to present his papers of inspection, and is subject to penalty in case of his inability to do so.

The opportunities for the sale of American automobiles in Germany are at the present time limited, on account of the very severe laws that govern the use of such machines. The automobile industry is, however, advancing rapidly, and there appears to be a very strong desire on the part of the manufacturers here not to have the bicycle business of 1892–1895 repeated. It would seem wise for American manufacturers to send men who are especially skilled in the automobile business and have them make an exact study of the laws of construction of automobiles. Should shipments of complete machines be made, it will be absolutely necessary to have a house in Berlin or Hamburg where broken parts can be replaced. If this part of the business is neglected, and the repairing of American machines is left to German mechanics, one can easily see what the results might be.

The following synopsis of the laws governing the traffic with automobiles in Saxony has also been received from Consul-General C. L. Cole, of Dresden:

The traffic on public ways with automobiles requires special permission by the Ministries of the Interior and Finances. Automobiles employed by the imperial postal service, the army, or a Saxon State administrative department do not require a permit.

A fee of not less than 5 marks ($1.19) and not exceeding 20 marks ($4.76) is payable upon granting of permit.

If the authorities deem it advisable to require the services of an expert when examining an automobile, the operator must pay for the extra expenses involved therein.

The authorities have the right to demand at any time the examination of an automobile. The operator must always carry the permit with him.

Permits are not issued to persons under 18 years of age.

The operator must avoid everything that may disturb or surprise the general traffic; he must be especially careful when horses or other animals get frightened or show such tendency and, when requested, stop immediately. It is not permitted to turn the vehicle around right in front of mounted or driven animals. Automobiles must give precedence to detachments of troops, royal carriages, funeral, and other processions, vehicles belonging to the post-office and the fire department, and also those serving for the watering and cleaning of the streets. The speed must not exceed the ordinary trot of a horse, or 15 kilometers (about 9 miles) an hour, when passing through cities, villages, etc., when meeting or passing other vehicles, etc., and after dark.

Racing on public roads is absolutely prohibited.

Operators are allowed to leave their automobile only when the motor can be put out of operation in such a manner that it can neither start by itself nor be put in motion by an unauthorized party.

Violation of the above rules is punished by fine up to 60 marks ($15) or fourteen days' imprisonment.

NETHERLANDS.

Consul-General S. Listoe, of Rotterdam, says:

In the following extracts from the Netherlands regulations appear the permits, licenses, etc., required when owning or using an automobile in the Netherlands:

[Extract from the regulations issued by the Government of the Netherlands.]

Conditions under which permission is granted for riding on the State roads with a motor carriage:

1. To the carriage must be affixed in the front and back, in black or white arabic figures on a white or black background, the rotation number; the figures must be at least 12 centimeters (4.7 inches) long and 6 centimeters (2.4 inches) wide. Between sundown and sunrise, the number in front must be clearly shown by means of a light.

2. On both sides of the carriage a lantern giving a clear light must be carried; the light must be visible from ahead and from the sides.

3. The carriage must be provided with an apparatus by which, if necessary, it can instantly be brought to a standstill, within a distance of 10 meters (10.9 yards).

4. The carriage must be provided with a bell or horn, by which a sounding signal can be made, which must be distinctly heard at a distance of 100 meters (109 yards).

5. The speed may never be more than 20 kilometers (12.4 miles) per hour, and when descending a slope, when near or at a turn in the road, when crossing roads or at crossings, when passing over bridges or passing buildings, when nearing built-up communities, the speed may not be more than 8 kilometers (4.9 miles) per hour; also in foggy weather, that speed may not be exceeded on any road. Besides, the speed must be decreased every time that the safety of the traffic demands it.

6. When meeting or overtaking horses or cattle driven or led, the driver of the carriage must decrease the speed or stop as soon as he perceives that the animals become disturbed or when the driver or leader gives a warning sign. Besides, everything ought to be avoided that could cause the animals to become scared.

7. The driver of the carriage is obliged to give a timely and distinct signal with the bell or horn, when overtaking carriages or persons, loose horses, horses pulling vehicles or carrying riders, and cattle; or when nearing crossroads, turns of the road, and bridges; and, in general, when the traffic along the road requires it.

8. The usual regulations for the common traffic and the customs with reference thereto must also be followed.

9. A motor carriage may not be applied for pulling other vehicles.

10. These regulations (with permit and register of persons holding permits attached thereto) must always be present in a motor carriage and can be amended or added to at any time.

When the permit is to be canceled, amended, or added to, the holder is obliged to return these regulations (with permit, etc.) upon written notice, within four days, to the Department of Water Ways, Commerce, and Industry.

When the carriage, by sale or other means, is transferred to another owner, the holder of these regulations (the permit is attached thereto) is obliged to return them immediately to the aforesaid Department.

[Extract from the regulations on the using of roads and footpaths in the province of South Holland.]

ART. 19. The drivers of vehicles meeting from two opposite directions must, in so far as the condition of the place of meeting permits, steer clear of each other from the left to the right, each for half of the road.

Where passing each other is impossible, the driver of the unladen vehicle, or when both vehicles are laden or unladen, the driver who is nearest to the place where the vehicles can pass each other, must drive there and stop. * * *

ART. 20. The use of motor carriages, vehicles pulled by dogs, and cycles is prohibited on the roads which are, at the request of a city council, declared unfit for such traffic by the provincial government. Decisions of this kind are published in the official Provincial Gazette, and are also posted in public places in the community in question and surrounding communities.

At the end of such roads, and at the points where such roads connect with roads to which the prohibition does not apply, the prohibition will be posted in a conspicuous manner.

Motor carriages are vehicles which are driven by mechanical power produced in the vehicle itself.

Motor cycles, including tricycles, which are used without applying the motor connected therewith are not considered motor vehicles.

Motor carriages with more than ten seats, or constructed for carrying freight, and also those of which the length is more than 3.6 meters (3.9 yards), the width more than 1.8 meters (1.96 yards), and the height, including the load, more than 2.5 meters (2.7 yards), may not be used on the roads without special permission.

The permission can be granted by the mayor and aldermen of a community when it applies to a distinctly indicated road in that community.

For using the roads in more than one community, the permission of the provincial government is required.

The permit must always be present in the carriage, and must be shown at the demand of persons charged with the control.

The pushing or pulling of loads or of other vehicles by means of motor carriages is prohibited.

ART. 25. Footpaths may not be used by driving or pack animals, nor by motor carriages.

Transgressions of these regulations are punished with different fines.

[Extract from the regulations of the city of Rotterdam.]

The mayor and aldermen of Rotterdam give notice to parties interested * * * that the written permit for riding with vehicles moved by mechanical power * * * will only be granted on condition that the regulations on driving vehicles and the regulations relating to riding in some streets will be adhered to, and besides—

1. That the same regulations apply to drivers of vehicles moved by mechanical power as apply to drivers of other vehicles. Where in those regulations mention is made of driving in a walk, a maximum speed of 5 kilometers (3.1 miles) per hour is meant, and by the speed of an average trotting horse is meant a speed of 12 kilometers (7.4 miles) per hour.

2. The vehicle must be provided with an appliance by which it can be brought to a standstill within a distance of 5 meters (5.4 yards).

3. The vehicle must be provided with a loud-sounding bell or signal horn.

4. When meeting or overtaking horses or cattle driven along the street, the driver must decrease the speed or stop the vehicle as soon as he perceives that the animals become disturbed or when their driver or guard gives a sign of warning.

5. The vehicle may not be used for pulling any other vehicle, unless the two vehicles are coupled together in such a way that the whole can be considered as one vehicle and the length of the two parts connected together is not more than 3 meters (3.3 yards), measured between the outer axles.

6. The vehicle may not be used or given in use until it has been approved of by the police authorities, in witness whereof, at the time of inspection, a small brass plate will be attached, the shape of which will be decided annually by the mayor and aldermen, and on which will be the words "Keur, Rotterdam, No. —," with the year and the figure or number to be indicated by the police authorities, unless the driver can show to the satisfaction of the chief of police that the vehicle has within the last year been approved of by the authorities of another community in the Netherlands.

7. Every year, the inspected vehicles must be again submitted for inspection on a day and at a place which will be published in due time, at which inspection owners must be present in person or by attorney.

8. The vehicle may only be driven by a person above 18 years of age, who is in the possession of a certificate from the chief of police, stating that he has sufficient knowledge of driving the vehicle, or a similar certificate from the authorities of some other community in the Netherlands.

9. The maximum weight of the vehicle (or of the coupled parts mentioned in paragraph 5) and the load may not exceed 4,500 kilograms (9,920.7 pounds).

[Extract from an article in the periodical De Kampioen.]

The following permissions, licenses, etc., are required for Amsterdam and surrounding country:

1. An official permit authorizing the bearer to make use of such streets and roads in Amsterdam as are open to automobile traffic.

2. A red permission certificate, signed by the chief of police, which must be attached to the automobile in a conspicuous place as a safeguard against arrest.

3. When the automobile is a two-wheeled one, a city number plate must be visibly attached a handbreath under the saddle.

On the provincial roads outside of Amsterdam are required:

1. A Government license, issued by the Minister of Water Ways, Commerce, and Industries.

2. A State number plate, bearing white figures on a black background, to be atached to the automobile in a conspicuous place.

When the automobile weighs less than 150 kilograms (about 330 pounds) no State license or State number is required.

Besides, the provincial government of the province of North Holland requires:

1. A written permit from the provincial government for running an automobile or motor carriage.

2. A written permit from same for the owner to act as driver.

3. A written permit from same made out in the name of the driver or "chauffeur," who, while in the service of the owner, can be charged with driving the automobile.

4. An official printed copy of the conditions under which the various permits are granted.

The motor carriages, automobiles, motor cycles, etc., must be provided, besides the bell, whistle, or horn, with the following equipments:

1. Large motor carriages, with two number plates attached to the front and back of the carriage, the figures on same to be white arabic on a black background, or black on white background, of a length and width of 12 and 6 centimeters (4.7 and 2.4 inches), respectively.

2. An extra lantern (besides the lanterns which throw light to the front and side, attached to both sides of the carriage), which, between sundown and sunrise, lights up the number in front of the automobile.

Motor carriages weighing less than 150 kilograms (about 330 pounds), under which are included motor cycles, must be provided in front with a plate or shield showing in white arabic figures on a red background, or the reverse, the provincial registration number, the figures of a length and width of at least 8 and 4 centimeters (3.1 and 1.5 inches), respectively. In the evening, an extra lantern or reflector must throw light on this number.

NEW GERMAN AUTOMOBILE.

According to a German technical journal (Kirchhoff's Technische Blätter), Ludwig Maurer has, after thirteen years of practical experimentation, succeeded in solving the problem of obtaining simplicity, reliability, endurance, and good uphill speed for automobiles, through the application of the principle of friction in the transfer of power. The idea which suggested the invention was taken from coining and paper-manufacturing machines, in which the transformation of power is obtained by virtue of so-called friction-wheels. So successfully did Maurer apply this principle to automobiles that the Nürnberger Automobile Manufacturing Union has adopted the invention in the manufacture of its light sporting vehicles, as well as in business machines having a carrying power of 10,000 pounds.

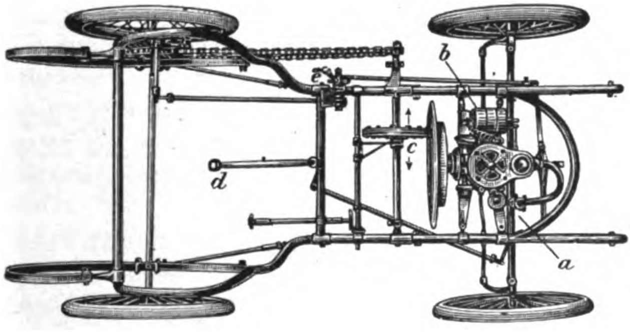
As shown in the illustration on the next page, the drive wheel, which is also the fly wheel, transfers its power directly to the friction wheel (*c*). The latter can be slid both ways upon the shaft by means of a forked clutch worked by the driver. On the left end of the shaft containing the friction wheel is a sprocket wheel, over which runs a chain which drives both back wheels.

It will be seen that the further the friction wheel is removed from the center of the fly wheel the higher will be its speed, and the nearer it is moved toward the center the slower will be its speed. When the friction wheel is moved across the center of the drive wheel, the motion is reversed and the automobile runs backward. When the friction wheel runs close to the center, at the point of slowest motion, the automobile can climb ascents up to 30 per cent, as determined by the gear arrangements. At the point of greatest speed, on the circumference of the drive wheel, a velocity of 30 to 60 kilometers (19 to 38 miles) per hour is attainable, varying with the power of the motor employed.

The contact between the drive wheel and the friction wheel is effected by moving the lever (*e*) and forcing the drive wheel backward against the friction wheel (*c*). Reversing this motion forces the drive wheel forward and away from the friction wheel. This simple mechanism obviates complicated structures, reduces friction to a minimum, and leaves few parts exposed to dust and grease.

Because of the possibility of attaining any speed desirable, the motor is used to its fullest extent whether running on level or ascending ground, no matter how frequent the change in elevation. As a result, a 4-horsepower machine equipped with the Maurer system is said to have a traveling capacity equivalent to that of other motors of 6 or 8 horsepower.

Another advantage consists in the ease with which the driver can get at all of the movable parts of the machine without besmearing himself in the act. The simple construction reduces the weight of the machine, decreases the wear on the pneumatic tires, and effects a pronounced economy in the consumption of gasoline, not only because of the lessened weight to be carried, but because of the gain in horsepower.



The simplicity of the machine enables a ready understanding of its parts and thus enlarges its usefulness for different persons, whether familiar with mechanics or not. When running, the operator is required to manipulate but one lever with each hand, thereby reducing the possibility of mistakes.

The machine, though readily manipulated by means of the lever (*e*) which causes the friction contact, can also be regulated by an appliance cutting off the supply of gas. The gas-feeding apparatus can be so operated as to permit of the running of the motor at a uniform speed of 400 revolutions per minute, the friction wheel being set at the circumference or point of greatest velocity. On uphill ground, the motor is supplied with more gas, thus increasing the power of the motor and carrying the machine up the ascent without a change of speed, through the manipulation of the friction-wheel lever. Only on unusual inclines need speed adjustments be made by means of the friction wheel. In this way the wear upon the motor is reduced by virtue of its uniform speed, and the gas consumption is regulated by the changing requirements of the road traversed.

J. F. MONAGHAN,
CHEMNITZ, *October 10, 1902.* *Consul.*

THE MOTOR-CYCLE TRADE IN GREAT BRITAIN.

The motor-cycle trade in the United Kingdom is a matter of practically only two years' growth, but it promises to become a most important branch of the automobile business, and—possibly in even a greater degree than the motor car—to help in solving the housing problem in England. That feature, interesting though it is, belongs more to the domain of social science; but the fact remains that there has just developed in this country a new branch of trade, catering not only to the very rich, but also to those who are merely well to do. In this new business, there is every reason that the American manufacturer should participate.

Although motor cycles are not yet nearly so numerous as the pedal-driven machines, there are already some thousands in use in the United Kingdom, and their appearance in London and on the country roads near all the larger towns is now so common as to no longer excite comment. The new sport has already a special journal devoted to its interests.

While there is, popularly speaking, a boom in motor cycling and there are over a score of machines on the market, the majority is of French or Belgian make, and a number that are advertised as English machines, with English names, are either imported outright or consist of continental motors built into English frames by local companies. There are probably half a dozen machines that are really English built throughout, and of these only three—the Singer, the Enfield, and the Humber—are the product of big factories that have previously made a reputation in the cycle business, and have now turned their attention to motors, owing to the popular demand. America is already represented in the market by three standard machines—the Mitchell, the Orient, and the Royal—all of which, it may be said, compare favorably with the best English and continental makes. There is still room, however, for the American manufacturer who will cater to the demands of the English rider.

Belt-driven machines are still vastly in the majority, despite certain obvious disadvantages of the system; though, curiously enough, among the high-grade English machines the Singer is gear driven and the Humber has a chain drive with a spring clutch for taking up the starting strain of the motor. The high-tension electric-ignition system, with coils and accumulators, is almost universal, though the Singer has an electro-magnetic ignition device which works very satisfactorily.

Excessive weight is the most objectionable feature of the prevailing type of machine. Those most commonly seen average 100 pounds. One of the standard road machines weighs 120 pounds, while the track racers, though they hardly deserve to be classed with the popular motor cycle, reach as much as 250 or 300 pounds. The lightest practical road machine is the Clement-Garrard, a French product. The motor set complete weighs only 21 pounds and is built into an English frame by a company in Birmingham, the machine scaling 65 pounds, all on.

Speaking on the weight question, the editor of Motor Cycling said recently:

> The featherweight machine is the next improvement that the public will demand from the manufacturer. People who now pay 40 guineas for a machine weighing 100 pounds or more would willingly pay 50 or 60 guineas for one weighing only half as much.

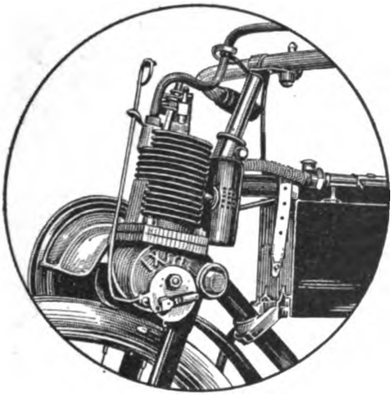
The principal difference between the English and American machines at present is that the English are belt driven instead of chain driven or direct geared. The motor is frequently merely clamped into the diamond frame of an ordinary bicycle instead of being built into a special frame. It is only fair to say, however, that a number of special frames are now being designed with a special view to standing up under the increased weight and vibration of the motor. Accumulators are favored as against dry batteries or electro-magnetic ignition. The standard horsepower up to date has been 1½, but new machines are being constantly turned out with engines of from 1¾ to 2½ horsepower, to meet the demand for greater hill-climbing power. It is generally conceded that the very high powered wheels are wasteful of fuel and subject to excessive vibration on the level, and that the ideal machine will be one with a light and comparatively low powered motor, but with a two-speed gear that will insure good hill-climbing power.

In spite of the English speed limit of 12 miles per hour, the English motor cyclist demands a machine capable of a good 20 miles on the level, with ability to keep it up without danger of overheating. It may be remarked that English roads are much better than the average in America, so that the machine which will endure hard work in the United States may be assumed to be perfectly capable of meeting English requirements.

It must be borne in mind, however, that the English purchaser, while he is able and willing to pay, demands first-class material and workmanship for his money, and the surest way to spoil a promising market is to try to tempt him with anything less than the best, either on the score of cheapness or attractive appearance. Unfortunately, it is a matter of history that the English market for American bicycles was ruined in just this fashion, when it promised to develop into an important field. True, there are one or two standard makes of American wheels that are still recognized here as models of excellence, but the work of other American firms, in throwing a lot of cheap low-grade wheels on the English market, ruined the reputation of our bicycle, so that both dealers and riders now refer to American wheels as "Yankee trash" in the most matter-of-fact way, and it is hard to persuade them that we can and do produce wheels of any other sort.

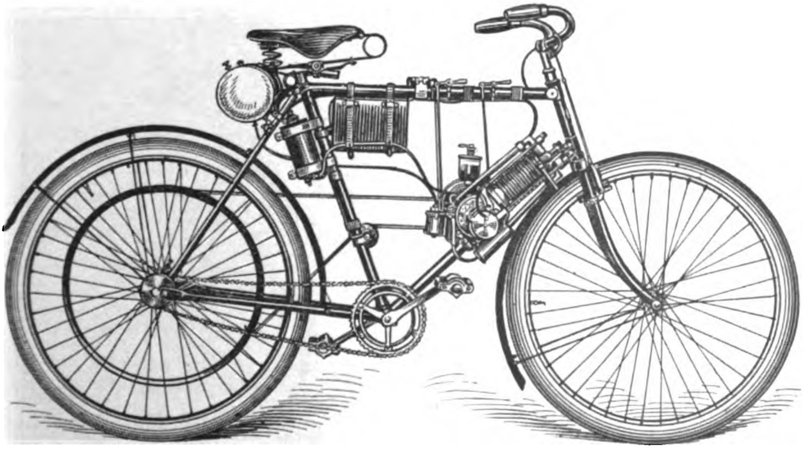
Of course, in its present stage of development, the motor cycle is undergoing constant change and improvement. There is no machine on the market that can claim to combine all the desirable features. But there are several points that might well be kept in view by a maker who wants to produce an ideal wheel for the English trade. Weight should be maintained as low as is consistent with effective working. A 50-pound wheel at the present juncture would command practically its own price. A thoroughly effective chain or gear drive, obviating the constant belt troubles that now worry the rider, would soon make its way, in spite of the popular idea fostered by many makers that the belt drive is the only effective and practical form of transmission. A simple two-speed gear, giving 20 miles an hour on the level, with the ability to take grades of one in seven without pedal assistance, is in great demand and is not forthcoming. A light weight but reliable form of electro-magnetic ignition would win its way against the now popular accumulator system. The trouble with the present magneto systems is that they will not endure the constant vibration. Ample mud guards are always demanded, preferably with an overhang beyond the front fork. English road riders have to contend with a large percentage of rainy weather, and they will cheerfully face rain for the sake of a ride, so that good mud guards are essential. The petrol capacity of the machine should be at least 100 miles. Single-lever control of the gas and electric-sparking devices has been tried and proved both effective and popular. Antivibration seat posts and handle bars are absolutely essential to comfort, and while there are good devices of this sort on the market, I believe there is at present no machine turned out from the factory with them. Another feature strongly demanded by riders, and not yet supplied, is either a comfortable spring foot rest or a swing-back pedal that will do away with the cramped position incident to keeping the feet on fixed pedals during a long ride.

The accompanying illustrations will give an idea of the types of machines in most common use here. It may be remarked, however, that the Minerva, the Werner, and the Clement-Garrard, all foreign machines, are more numerous than all the other makes combined. Finally, prompt delivery is of great importance, as there are but few of the machines on the market that can be supplied by the makers from stock.



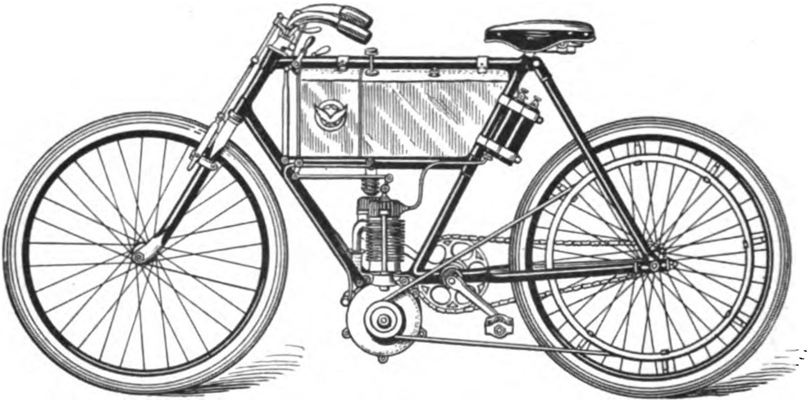
THE IXION.

The Ixion two-stroke motor weighs 18 pounds, claims to develop 1½ horsepower, and works with friction roller on front tire. It is a French device, but an English company is now fitting it to ordinary road bicycles. Price, motor set, £15 15s. ($76.64); with cycle complete, £27 10s. ($133.83).



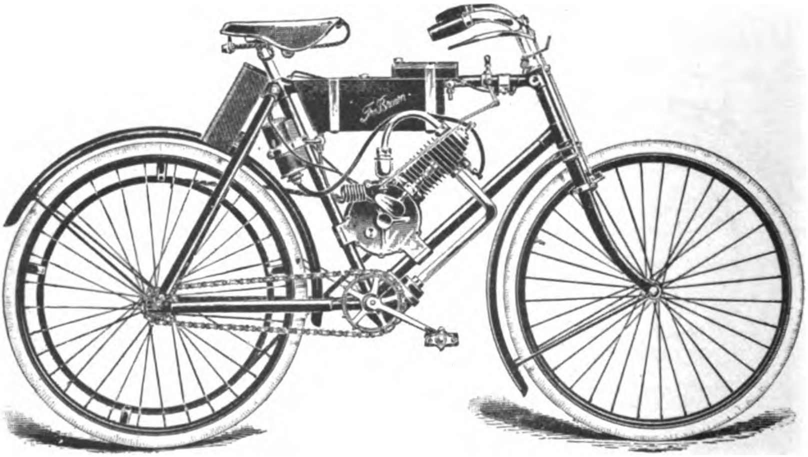
THE CLEMENT-GARRARD.

The Clement-Garrard is a French motor, weighing only 21 pounds, built into an English frame by the Garrard Manufacturing Company, of Birmingham. It holds a record of 100 miles on 3 pints of petrol and is the highest practical machine now on the English market. Weight complete, 65 pounds. It is belt driven, with high-tension electric ignition, and may be taken as one of the best types of English roadster. The company is putting out a chain-driven machine for next season.



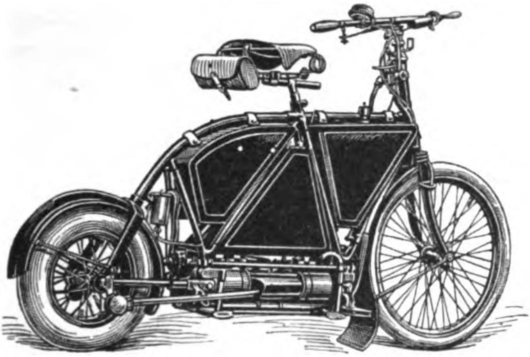
THE WERNER.

The Werner French motor holds a prominent place at present in the English trade. The motors are sometimes imported and built into English frames, though the larger number of these cycles are French built throughout. They are all belt driven, with the usual high-tension ignition, and while there is no striking mechanical feature about them, their workmanship is excellent and their reliability has won them their high rank in the estimation of English cyclists.



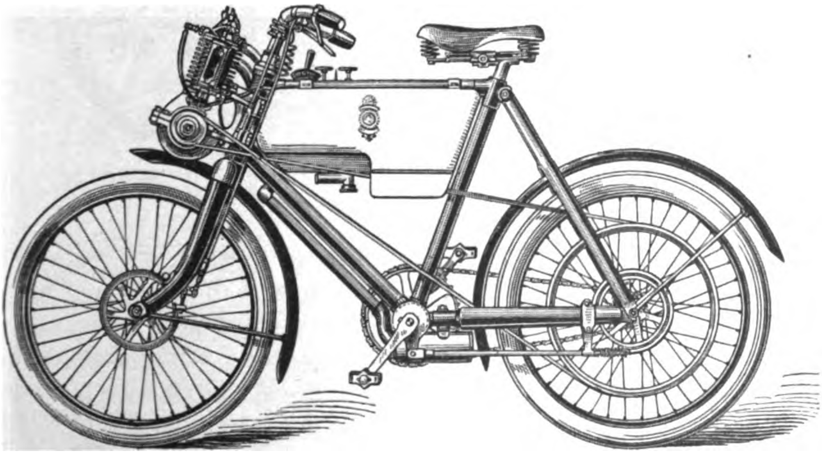
THE BROWN.

The above is a type of imported Belgian motor mounted in English factories. The motor is less than 2 horsepower.



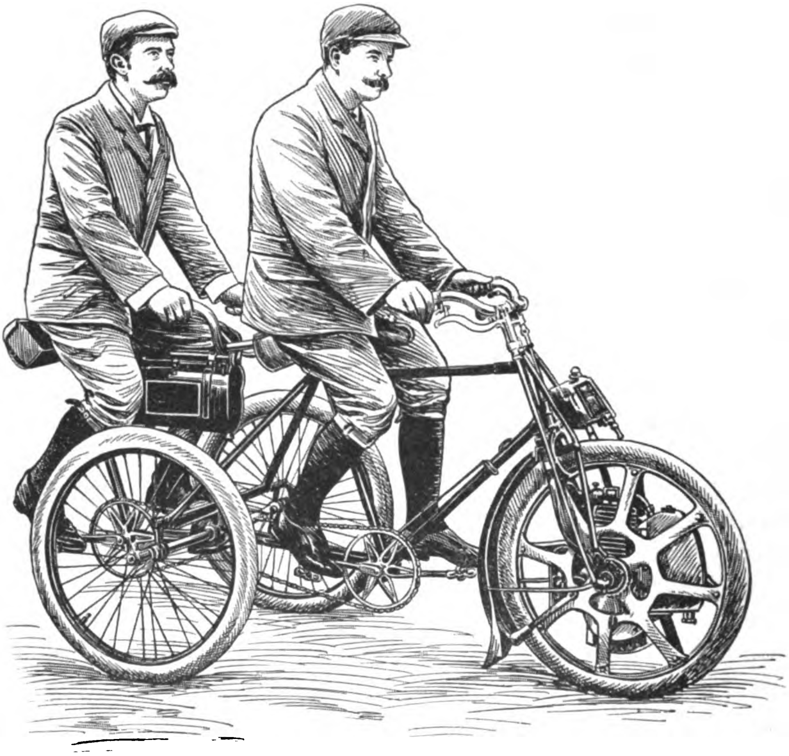
THE HOLDEN.

The Holden is a peculiar looking English machine manufactured by the Motor Traction Company, Limited, Walnut Tree Walk, Kennington, London, S. E. It has no belt, chain, or pedals—the four cylinders driving direct to the small rear wheel. One coil and trembler actuates them all. The engine is water jacketed, 3 horse-power, and can be controlled by a single lever from walking pace to 30 miles per hour. It has no fly wheels or crank cases. The lubrication is automatic, and petrol can be carried for 150 miles. As it is a comparatively new machine, it is impossible to say just how its radical features will compare in actual work with the standard type of small combustion motor.



THE ROYAL ENFIELD.

The above is another type of English machine manufactured by the Enfield Cycle Company, Redditch, England. The 1¾-horse-power motor is mounted on the steering head, giving an extra-long belt drive. It is understood, however, that the company's next machine will carry the engine inside the frame. Petrol tank, coil, accumulators, and lubricating reservoir are all carried in the large metal case inside the diamond. Price, 50 guineas ($255.50). The same company makes a 2¾-horsepower tricyle at 75 guineas ($383.25) and a 3½-horsepower quad at 120 guineas ($613.20). The higher powered engines are water cooled.

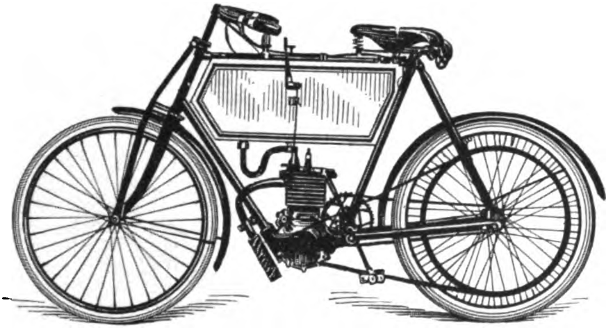


THE SINGLE-MOTOR TANDEM.

The above is a strictly English machine, by the Singer Company, of Coventry. It is peculiar in having the whole of the motor mechanism inclosed in the driving wheel. The bicycle is built on the same principle, but drives from the rear wheel. The motor and petrol tank ride on the axle, to which the motor is geared direct. The ignition is magneto electric, all the necessary levers being controlled from the handle bar. The bicycle motor is of 2 and 2½ horsepower, and the machines are extremely good hill climbers. A spare petrol tank can be carried in the frame, giving a capacity of nearly 200 miles. The price of the bicycle is £70 ($340.65), and in spite of its high cost it seems to be a popular machine, indicating that the English rider is able and willing to pay well for a satisfactory wheel.

Other popular machines are:

The Rex (English), with 2-horsepower motor and petrol tank carried inside frame; belt drive; front fork strengthened; petrol capacity, 100 miles; price, 48 guineas ($245.28); weight, 100 pounds.



THE REX.

The Minerva, a typical Belgian motor, which is imported and built into all sorts of English frames; made in 1½ and 2 horsepower; uses belt drive and coil and accumulator ignition.

The Royal Sovereign, an English machine of conventional type; 1½-horsepower motor and petrol tank carried inside the frame; drives from a twisted rawhide belt; maximum speed, 30 miles per hour; price, 33 guineas ($168.63); London Machinists' Company, High street, Kingsland, London, N.

The Clyde motor bicycle; English made; 2-horsepower engine built into frame, magnetic ignition; petrol capacity, 150 miles.

H. Clay Evans,
Consul-General.

London, *October 28, 1902.*

COMMERCE AND INDUSTRIES OF GERMANY IN 1901.

The period of industrial reaction and financial depression in Germany, which began during the summer of 1900, has continued, with varying and often suddenly fluctuating conditions, throughout 1901 and down to the date of the present report. It is true that certain branches of manufacture, notably the textile industry, have during the past eight months shown encouraging signs of recovery, and there were apparent at the close of 1901 various indications that the worst of the crisis was past and that the process of recovery, however slow it might prove, had been definitely begun. Since then, however, those favorable prognostics have been only measurably confirmed, and but for an active, well-sustained foreign trade, it is difficult to say wherein the general economic situation of this country is improved since the early autumn of 1901. It is not too much to say that the steady increase in exports from year to year, and especially the strong and sustained demand for German manufactures in the markets of the United States, now form the brightest spot on the commercial horizon of the Fatherland. The total values of Germany's foreign trade during the nine years which ended with 1901 were as follows:

Year.	Imports.	Exports.	Total foreign trade.
1893	$993,908,660	$772,205,756	$1,766,114,416
1894	1,019,956,854	726,252,246	1,746,209,100
1895	1,010,574,418	814,977,450	1,825,551,868
1896	1,088,480,624	874,287,702	1,962,768,326
1897	1,150,228,058	906,335,178	2,056,563,236
1898	1,303,680,224	952,415.548	2,256,095,772
1899	1,376,503,464	1,039,681,342	2,416,184,806
1900	1,438,234,000	1,131,214,000	2,569,448,000
1901	1,420,150,046	1,132,738,866	2,552,888,912

In quantity, the exports were 318,252 tons less in 1901 than in 1900, but there was notwithstanding this an increase of $1,524,866 in value, and this indicates an increased proportion of higher grade merchandise in the shipments of the year.

In respect to imports, the most notable falling off was 1,064,244 tons of coal, 582,445 tons of iron, and 545,974 tons of lumber; and the diminished demand for these staple materials of manufacture has been in close and direct relation to the stagnation which prevailed in most branches of industry.

LEADING CLASSES OF IMPORTED AND EXPORTED MERCHANDISE.

The following summary of twenty-four leading articles of import and export during the year 1901, grouped in the order of their respective values, shows the relative importance of raw materials and manufactured products in each category, as follows:

Imports during 1901.

Article.	Value.		Per cent of total.
	Marks.		
Cotton, raw	296,200,000	$70,495,600	5.2
Wheat	282,700,000	67,282,600	5
Wool	231,600,000	55,120,800	4.1
Coffee, raw	147,700,000	35,152,600	2.6
Gold coin	136,600,000	32,510,800	2.4
Gold bullion	120,200,000	28,607,600	2.1
Corn	119,800,000	28,512,400	2.1
Tobacco, raw	112,300,000	26,727,400	2
Lard and other fats	106,700,000	25,410,600	1.9
Silk, raw	105,500,000	25,109,000	1.8
Barley	105,400,000	25,085,200	1.8
Eggs and yolks of	104,800,000	24,942,400	1.8
Coal	92,200,000	21,943,600	1.6
Chile saltpeter	90,000,000	21,420,000	1.6

Imports during 1901—Continued.

Article.	Value.		Per cent of total.
	Marks.		
Rye	85,100,000	$20,253,800	1.6
Wood and lumber	87,000,000	20,706,000	1.5
Copper, raw	85,100,000	20,253,800	1.5
Cattle hides	84,500,000	20,111,000	1.5
Woolen yarn	82,900,000	19,730,200	1.5
Horses	78,600,000	18,706,800	1.4
Brown coal (lignite)	75,400,000	17,945,200	1.3
Petroleum	71,300,000	16,969,400	1.2
Iron ores	69,700,000	16,588,600	1.2
Machinery	64,300,000	15,303,400	1.1
All other imports			51.2

Exports during 1901.

Article.	Value.		Per cent of total.
	Marks.		
Cotton goods	219,800,000	$52,312,400	4.9
Woolen goods	212,600,000	50,598,800	4.7
Mineral coal	209,700,000	49,908,600	4.6
Sugar	202,800,000	48,266,400	4.5
Machinery	200,700,000	47,866,660	4.4
Iron manufactures, coarse	144,000,000	34,272,000	3.2
Silk goods	137,300,000	32,677,400	3
Clothing of all kinds	116,600,000	27,750,800	2.6
Engravings, etchings, etc	89,900,000	21,396,200	2
Aniline and other colors	79,600,000	18,944,800	1.8
Books, maps, and music	79,400,000	18,897,200	1.8
Iron manufactures, fine	77,900,000	18,540,200	1.7
Gold and silverware	60,900,000	14,494,200	1.3
Woolen yarn	56,300,000	13,399,400	1.2
Leather	54,800,000	13,042,400	1.2
Toys	53,100,000	12,637,800	1.2
Coke	52,200,000	12,423,600	1.2
Porcelain	45,200,000	10,757,600	1
Furs and skins	44,400,000	10,567,200	1
Wrought-iron bars	34,800,000	8,358,600	.8
Sheet iron and tin	34,700,000	8,258,600	.8
Angle and structural iron	34,600,000	8,234,800	.8
Cattle hides	34,400,000	8,187,200	.8
Iron wire	33,100,000	7,877,800	.7
Pianos	29,900,000	7,116,200	.7
Wood, manufactures of	29,900,000	7,116,200	.7
Leather goods, fine	29,700,000	7,068,600	.7
Copper and brass manufactures	29,400,000	6,997,200	.6
Cotton yarn	28,500,000	6,783,000	.6
All other exports			45.5

Among the notable surprises in the foregoing statistics is the fact therein revealed that the exports of engravings, etchings, etc., exceed in value those of aniline and other colors, leather, or porcelain, all of which are leading products of this country, and that the imports of corn exceed in value those of raw silk, tobacco, or coal. The imports of eggs are more valuable than those of lumber and timber, copper, petroleum, iron ores, or machinery.

GEOGRAPHICAL DISTRIBUTION OF GERMANY'S FOREIGN TRADE.

In respect to the origin of merchandise imported into this country last year, the United States again heads the list with a total, according to German statistics, of 1,042,100,000 marks ($248,019,800), or 18.2 per cent of the entire bulk of imports, as against $242,950,400, or 16.9 per cent, in 1900. The distribution for the year presents the following interesting exhibit:

Imports by countries during 1901.

Country.	Value.		Per cent of total.
	Marks.		
United States	1,042,100,000	$248,009,800	18.2
Russia and Finland	729,500,000	173,621,000	12.8
Austria-Hungary	693,300,000	165,005,400	12.1
Great Britain	657,800,000	156,556,400	11.5
France, Algeria, etc	289,200,000	68,829,600	5
British East Indies	214,800,000	51,122,400	3.8
Netherlands	203,800,000	48,504,400	3.6
Argentine Republic	200,800,000	47,790,400	3.5
Belgium	186,500,000	44,387,000	3.3
Italy	182,600,000	43,458,800	3.2
Switzerland	154,200,000	36,699,600	2.7
Brazil	113,900,000	27,108,200	2
British Australia	100,900,000	24,014,200	1.9
Chile	100,700,000	23,966,600	1.8
Dutch East Indies	96,700,000	23,014,600	1.7
Sweden	84,300,000	20,063,400	1.5
Spain	78,300,000	18,635,400	1.4
Denmark	68,300,000	16,255,400	1.2
Roumania	47,800,000	11,376,400	.8
China	44,700,000	10,538,600	.8
Central America	25,400,000	6,045,200	.6
Egypt	32,100,000	7,639,800	.7
Turkey	30,100,000	7,163,800	.7
British South Africa	22,000,000	5,236,000	.4
Norway	21,600,000	5,140,800	.4
Free port of Hamburg	20,300,000	4,831,400	.4
Japan	19,800,000	4,712,400	.3
Portugal	18,100,000	4,307,800	.3
Uruguay	14,500,000	3,451,000	.3
Cuba and Porto Rico	12,400,000	2,951,200	.2
Mexico	10,800,000	2,570,400	.2
Venezuela	9,400,000	2,237,200	.2
Greece	9,200,000	2,189,600	.2
Ecuador	8,600,000	2,046,800	.1
Dominica	6,100,000	1,451,800	.1
Haiti	2,200,000	523,600	....
Servia	7,500,000	1,785,000	.1
Bolivia	7,400,000	1,761,200	.1
British North America	7,400,000	1,761,200	.1
Peru	7,200,000	1,713,600	.1
Siam	6,700,000	1,594,600	.1
British West Africa	30,900,000	7,354,200	.7
Portuguese West Africa	6,600,000	1,570,800	.1
All other countries	67,400,000	16,041,200	1.2
Total	5,710,300,000	1,359,051,400	100

Exports by countries during 1901.

Country.	Value.		Per cent of total.
	Marks.		
Great Britain	916,400,000	$218,103,200	20.3
Austria-Hungary	491,500,000	116,977,000	10.9
United States	385,800,000	91,820,400	8.5
Netherlands	379,000,000	90,202,000	8.4
Russia and Finland	345,900,000	82,024,200	7.7
Switzerland	264,300,000	62,903,400	5.9
France, Algeria, etc	250,800,000	59,690,400	5.6
Belgium	236,000,000	56,168,000	5.2
Italy	127,200,000	30,273,600	2.8
Denmark	118,000,000	28,084,000	2.6
Sweden	111,400,000	26,513,200	2.5
British East Indies	79,500,000	18,921,000	1.8
Free port of Hamburg	73,300,000	17,445,400	1.6
Norway	65,000,000	15,470,000	1.4
Argentine Republic	54,200,000	12,899,600	1.2
Australia	52,200,000	12,423,600	1.2
Spain	50,000,000	11,900,000	1.1
China	47,500,000	11,305,000	1
Japan	45,500,000	10,829,000	1
Turkey	37,300,000	8,877,400	.8
Brazil	35,500,000	8,449,000	.8
Chile	34,000,000	8,092,000	.8
Roumania	34,000,000	8,092,000	.8
British North America	25,600,000	6,092,800	.6
Mexico	26,000,000	6,188,000	.6
Dutch East Indies	26,000,000	6,188,000	.6
British South Africa	20,000,000	4,760,000	.4
Portugal	19,900,000	4,736,200	.4
Egypt	16,500,000	3,927,000	.4
German West Africa	11,400,000	2,713,000	.2
Peru	11,000,000	2,618,000	.2
Cuba and Porto Rico	10,500,000	2,499,000	.2
Uruguay	9,600,000	2,284,800	.2
Servia	7,200,000	1,713,600	.2
Philippines	7,000,000	1,666,000	.2
Venezuela	7,000,000	1,666,000	.2
Greece	6,500,000	1,547,000	.1
Central America	5,900,000	1,404,200	.1
Bulgaria	5,900,000	1,404,200	.1
Free port of Bremerhaven	8,900,000	2,118,200	.2
British West Africa	7,600,000	1,808,800	.2
Portuguese Africa	1,800,000	428,400	....
All other countries	42,800,000	10,186,400	1
Total	4,512,600,000	1,073,998,800	100

It is thus shown by German statistics that the imports from the United States into Germany during 1901 were valued at $248,009,800, while German exports to our country reached a total valuation of $91,820,000, leaving the formidable balance of $156,189,800 in favor of the United States. It is to be remarked, however, that the foregoing import figures include the vast bulk of American merchandise landed at Hamburg and Bremen for transit to Russia, Austria-Hungary, and Switzerland, which did not, therefore, belong to

Germany at all. On the other hand, official valuations of German exports are estimated—not absolute—and are not, therefore, always exact. The sum of values of exports declared at United States consulates throughout Germany, which certainly do not err on the side of overvaluation, was $99,616,731.93, and these did not include the large quantity of miscellaneous merchandise bought and taken home by American tourists or exported hence by package post in quantities valued at less than $100, which do not require a consular invoice and therefore pass unrecorded at consulates. But, making full allowance for all possible errors in statistics, the excess of German imports from, over exports to, the United States is enormous and steadily growing, the adverse balance having increased from $138,301,800 in 1900 to $156,189,800 in 1901.

FOREIGN TRADE OF THE CURRENT YEAR.

The record for the first six months of 1902 shows that the exports of Germany to all countries reached a total of 18,895,185 tons, valued at 2,286,000,000 marks ($571,500,000), as compared with 17,862,857 tons, valued at 2,136,000,000 marks ($508,368,000), during the same period in 1901. The net increase for the six months was, therefore, 1,032,328 tons in bulk and $63,132,000 in value. Imports for the same period were 23,869,407 tons, valued at 2,840,000,000 marks ($710,000,000), against 25,119,077 tons, valued at 2,752,000,000 marks ($688,000,000) during the first half of the preceding year. For reasons that have been explained in previous reports of this series, this sustained increase in exports, although a favorable indication, is subject to the qualification that some at least of the exported goods have been sold abroad at prices which yielded to the exporters very meager profits, and in some cases none at all. For example, the exports of iron and steel during the first six months of 1902 rose to 1,503,742 tons, against 994,404 tons for the same period in 1901 and 744,224 tons in 1900; but there can be no doubt that much of all this vast export was marketed abroad at prices which barely covered the cost of production.

As a test of the degree which the present industrial situation in Germany, the pending tariff legislation, and the influence of the meat-inspection law and other legislation have collectively exerted upon the importations of raw materials and food products from the United States, there is given in the following table a few leading items from the record of the six months—January 1 to June 30—as compared with that of the corresponding period for 1901 and 1900:

Imports from the United States for the first six months of 1900, 1901, and 1902.

Article.	1900.	1901.	1902.
	*Met. tons.**	*Met. tons.**	*Met. tons.**
Raw cotton	155,706	142,892	165,054
Cotton waste	6,667	5,724	6,905
Wheat	256,208	389,940	566,989
Rye	14,793	15,079	20,172
Oats	26,730	44.478	2,090
Corn	546,662	571,104	43,995
Raw tobacco and stems	6,433	5,800	6,397
Hides and skins	3,963	2,149	1,412
Lumber, timber, and staves	131,655	107,109	168,164
Meats of all kinds	8,659	7,086	9.085
Petroleum and products	367,495	374,128	429,425
Pig iron	5,787	9,309	309
Cotton-seed oil	9,138	10,918	7,705
Copper	33,762	23,135	35,780
Electrical machinery	232	232	102

* 1 metric ton=2,204 pounds.

Especially noticeable in this exhibit is the heavy increase in wheat imports and the important falling off in corn, due mainly to its high price in America, which permitted the corn of Russia, Roumania, Hungary, Argentine Republic, and Servia to compete, although there was a decline in the total import of corn from 831,451 tons during the first six months of 1901 to 592,087 tons during the same period in 1902. Cotton, lumber, petroleum, and tobacco imports from our country show a steady, normal increase; even meats, in spite of all restrictions, rather more than held their own. Copper shows a satisfactory increase, while the import of pig iron dropped to a bagatelle of 309 tons and was replaced by an export of 7,465 tons of German pig iron to the United States. The imports of agricultural machinery declined from 19,214 tons in the first half of 1900 to 17,162 and 11,028 tons, respectively, for the corresponding periods in 1901 and 1902. The importation of American machinery into Germany, which reached its climax in 1900, has since then steadily declined, the aggregate imports in all classes, viz, sewing machines, agricultural implements, machine tools, pumps, and other machinery, having been valued at 10,800,000 marks ($2,570,400) in 1898, 17,500,000 marks ($4,165,000) in 1899, 31,800,000 marks ($7,568,400) in 1900, and 19,200,000 marks ($4,269,600) in 1901. The machine tools imported from America two and three years ago have been employed to make Germany a producer of machinery for export at prices with which the American makers, rushed and driven as they are by demands at home, find it difficult to compete.

THE METAL AND MINING INDUSTRIES.

It is a recognized principle in national economics that the ratio of consumption of pig iron is an approximately accurate measure of the prevailing degree of prosperity among an industrial people.

Accordingly, the relapse which came upon industrial Germany in the summer of 1900 is accurately reflected in the declining product of its mines and iron mills during the subsequent year. Thus, the production of coal, which rose from 70,000,000 tons in 1890 to 109,290,237 tons in 1900, dropped back to 108,417,029 tons, a decrease of 870,000 tons in 1901. It is true the decrease was only four-fifths of 1 per cent, but it was sufficient to show that the high-water mark of activity had been passed and the period of contraction begun. Similarly, the output of iron ores fell from 18,964,294 tons in 1900 to 16,570,258 tons—a loss of 2,400,000 tons—in 1901, while the production of pig iron showed a corresponding decline from 8,494,852 tons to 7,835,204 tons, a loss of 660,000 tons, or 7.8 per cent. Equally significant is the fact that while the average value of pig iron fell from $15.32 in 1900 to $14.85 in 1901, the price of coal—at the mouth of the mine—advanced from $2.10 to $2.23 per ton during the same period. Prices of coal in Germany are governed by the decrees of the syndicate that controls practically the entire native supply, so that the higher rates which prevailed in 1901 were the result, not of increased demand for consumption, but of a restricted output and cleverly manipulated selling arrangements. The stubbornly maintained price of coal was in fact one of the factors which contributed to increase the embarrassment of the iron and steel industries, and serious complaints were heard from the owners of furnaces and rolling mills, who, having no coal mines of their own, were dependent upon purchased supplies and were either bound by fuel contracts made in prosperous times, or, what was worse, were forced to either shut down or pay the still higher prices which were maintained after the depression in iron and steel interests had come. Meanwhile, the iron and steel makers, deprived of their previous insatiable home market by the paralysis that had overtaken so many branches of manufacture, gave their best energies to extending their exports, with such success that the exports of iron and steel, which had amounted to 744,224 tons during the first six months of 1900, rose to 994,404 tons during the first six months of 1901 and 1,503,742 tons during the same period in 1902. These were by far the largest exports in that class ever recorded in Germany. But while the increase in quantity from 1901 to 1902 was 51.2 per cent, the increase in values was only 22.7 per cent, and this revealed the fact—well known to those in the trade—that much of the iron and steel exported from Germany during the past year has been sold on the basis of a clearing-out sale, for what it would bring, and for prices which yielded little, if any, profit to the exporters. However, the large export served to clear out accumulated stocks, and by keeping the mills and workmen measurably employed, helped to palliate some of the worst effects of the crisis. So timely was the relief thus obtained, that a powerful special syndicate has been formed during the summer of 1902 for the purpose of paying bounties on exports of iron and steel. This combination includes the coal, coke, pig-iron, and semiproduct syndicates, the wire-drawers' association, and the syndicates of sheet metal, girders, and structural iron, respectively, and has its central office at Cologne. The purpose of the combination is to pay to such of its members as export all or part of their product a bonus equal to the difference between the current price of the merchandise in the German market and the price actually obtained for it abroad; in other words, to sustain exports at the expense of the home consumers of steel and iron.

SOME EFFECTS OF SYNDICATED MANAGEMENT.

It is but natural that a period of industrial depression like that through which Germany is now passing should furnish a supreme test of the efficiency of consolidated management, for which so much had been promised and expected. Unquestionably, some of the more important German syndicates served a good purpose by preventing sudden and undue advances in prices of products during the years of great prosperity. It had been promised for them that they would "serve as a parachute to let manufacturers gently down to solid ground" when the time of reaction and contraction should come. That they have done this to some extent, and thus perhaps saved the country from a worse crisis, is conceded; but there is a growing number of thoughtful men in Germany who begin to question whether the cost of such a system is not unduly great for the domestic consumer. In connection with the discussion thus inspired, some curious facts have been revealed. It was shown in evidence produced before a court at Godesberg that the coke syndicate had sold to three large iron companies in Austria blast furnace coke for $1.97 per ton, while the price to German furnace men was held stiff at 17 marks ($4.04), or more than double the export rate. The girder syndicate mills are charged with having taken foreign orders at from 89 to 92 marks ($21.18 to $21.89) per ton, while maintaining a home rate of 120 marks ($28.56). The rail syndicate sold rails abroad for 30 marks ($7.14) per ton below the inland price, the wire mills cut their home rate of 150 marks ($35.70) down to 105 marks ($25) for export, and the rollers of plates and other shipbuilding material pursued a similar policy, until the shipbuilders of the Lower Rhine made formal complaint that they could not compete with the Dutch and Belgian shipyards which derived their metal supplies from Germany. Whatever may be the result, the fact is that the industries of Germany are now more thoroughly and largely syndicated than ever before, and a movement is taking shape to provide a system of closer and more exacting government supervision over such combinations.

Aside from the metal and mining industries, the other leading branches of manufacture seem to have weathered the adverse wind and tide—at least down to the close of 1901—reasonably well. While it is difficult to be exact in a study of this kind, the average dividends paid by joint-stock and limited-liability companies during the past two years may be taken as a nearly correct key to the real situation. The comparison, based upon trustworthy published reports, is as follows:

Description.	Dividends.	
	1900.	1901.
	Per cent.	*Per cent.*
Earthenware, glass, and porcelain	13.64	12.41
Chemical manufactures	11.24	10.41
Breweries and distilleries	10.09	9.39
Paper mills	10.96	8.13
Textile manufactures	4.58	3.18
Electrical machinery and supplies	9.55	5.79

As might have been expected, the worst showing in this brief list is made by the electrical manufacturers, whose situation and the causes which led to it have been so fully described in previous reports of this series (ADVANCE SHEETS No. 1429, August 27, 1902*) as to render superfluous any further extended reference to the subject. In a word, the electrical manufacturing capacity of Germany was enormously overfinanced and overexpanded; it has suffered a serious relapse and heavy losses, but is now pluckily trying to get back to solid ground. Meanwhile, it is turning out large quantities of machinery and materials which, except for certain Government contracts, are being sold at little or nothing above cost, by way of keeping the factories open and the trained workmen together and employed until brighter days may come.

UNDERLYING CAUSES OF THE PRESENT DEPRESSION.

No analysis of the existing situation in Germany can be discriminating or just which does not take into account certain basic and inherent conditions, which are beyond governmental or corporate control, and reach backward and down to the vital foundations of the Empire.

Germany was in 1871 a nation of 39,119,000 inhabitants, of whom 60 per cent were engaged in agricultural pursuits. In December, 1900, it had grown to an Empire of 57,793,000 souls, of whom 35 per cent derived their support from agriculture and 65 per cent—nearly two-thirds—were engaged in professional pursuits or some form of industry or trade. This transformation from agriculture to industries and commerce took place mainly during the period from 1880 to 1895. During those fifteen years, the increase of working population was 17.8 per cent, of which agriculture gained only seven-tenths of 1 per cent, while manufactures, mining, and the building trades were augmented by 29.5 and commerce by 48.9 per cent. It was a time when young men by hundreds of thousands left their native farms and villages and flocked to mines, factories, and industrial cities and towns. In 1881, 486 persons out of every 100,000 of the population emigrated, mainly to the continent of America. In 1899, the number of emigrants per 100,000 had fallen to 44. The Empire was by this time increasing in population at a rate of nearly 800,000 per annum. As late as 1895, 20,104 men were engaged in shipbuilding, but five years later their numbers had increased to 40,808—more than doubled. Trade unions multiplied rapidly and trebled their membership within five years, and strikes increased in number from 73 in 1892 to 967 in 1899. Wages in all departments increased slowly, but employment was steady, many mechanics and operatives worked overtime, the condition of the laboring classes improved, their wants increased, and there was a general advance in respect to their dwellings, food, clothing, and standard of living.

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* CONSULAR REPORTS No. 265 (October, 1902).

There could be but one sequel to all this, and the inevitable happened. The enormous transfer of productive labor from agriculture to industries changed the whole economic balance of the Empire, and the result was a vast overproduction of many kinds of merchandise, but an underproduction of food materials. While the population of the Fatherland had increased 36 per cent during the twenty-eight years from 1872 to 1900, coal production had increased 260 per cent, pig iron production by nearly 330 per cent, shipping by 500 per cent, railway earnings by 400 per cent, and exports, although rapidly developing, had increased only 100 per cent. Inevitably, such conditions entailed overproduction and the accumulation of surplus products for which there was no adequate and natural market at home or abroad. This was not noticed so long as the general prosperity continued. There was an abundance of money for everything. Banks of high repute and vast resources took to financing industrial enterprises to an extent never perhaps seen in any other country. In many cases, bankers urged electrical and other manufacturers to enlarge their plants or build new ones and equip them with the most perfect modern machinery. Any industrial enterprise with a plausible prospectus could obtain all the money it needed for construction and working capital; and so the productive capacity of the nation outran the demand for its products, rival companies competed for what legitimate trade there was by cutting prices, and when that failed, began buying orders by organizing and taking stock in new companies which would purchase their products.

The result is written in the history of the two critical years since May, 1900, when the zenith of prosperous activity was passed and the period of reaction and depression began. The losses through depreciation of industrial securities were so great as to radically change the financial status of hundreds of thousands of people. The stocks of 21 of the principal electrical manufacturing companies, whose shares were valued on January 1, 1899, at 443,550,000 marks ($105,564,900), had fallen in December, 1901, to an aggregate valuation of 270,810,000 marks ($64,452,780), an average loss of 61 per cent. The failure of the Leipziger and other important banks, through reckless management, added to the public distrust, and people hastened to get their money out of banks and industrial enterprises and into safe and solid public securities. The imperial loan went from 92 to above par, good municipal and State securities rose in proportion, and the Russian loan offered in Germany was oversubscribed a hundred times. The meaning of it all was that most intelligent men realized that Germany had, during the past twenty years, been following new paths, the outcome of which was not yet clear; that in the transformation from an agricultural to an industrial state, new conditions had been created which would require time, good management, and skillful legislation to harmonize, adjust, and solidify into the basis of permanent national prosperity. Meanwhile, they preferred solid securities bearing low rates of interest to speculative enterprises.

TARIFF REVISION, COMMERCIAL TREATIES, AND SUMPTUARY LEGISLATION.

To this already difficult situation is added the uncertainty and suspense entailed by the long and strenuous discussion of the new tariff act, the uncertainty of its enactment by the present Reichstag, and the renewal of the commercial treaties on which the export trade of Germany so largely depends, which latter must have as a basis the revised tariff law that should take effect at the beginning of 1904. Whether the law can be enacted and the treaties dependent upon it negotiated and concluded before that date is becoming a matter of increasing doubt and uncertainty. The tariff act, after passing its first reading at the last session of the Reichstag, was referred to a commission and then to a subcommission, which is now engaged in revising and preparing it for a second reading before the Reichstag, which is to reassemble in November. As the budget legislation usually occupies the period from the Christmas holidays to Easter, and as the present Reichstag will expire by limitation on June 3 next year, there is a growing belief that, with all the opposition which is now arrayed against the measure, it will be impossible for the revised tariff act to reach a third reading and enactment by the present legislative body, in which event it would be left over as the dominant issue in the election of a new chamber. However the event may prove, the present state of suspense and the uncertainty throws its shadow across the industrial and commercial revival which has been so hopefully awaited during the past year.

Another element in the problem which must be taken into account is the fact that the population of Germany is increasing at the rate of 800,000 a year. There is a steady, rapid growth in the number of persons to be sheltered, employed, clothed, and fed. Certain food materials, especially meats, have recently grown abnormally scarce and dear. How far this is due to the inability of the farmers to raise sufficient swine and cattle for the food of the people, and how far this circumstance is aggravated by the new difficulties laid in the way of importing animals by the meat-inspection law, or whether the higher prices are due rather to the greed of butchers and meat dealers, are disputed points concerning which public opinion is divided and excited. Add to this the far-reaching effect of the pending abolition of sugar-export bounties by the Brussels conference, and it will be apparent that the task of adjusting a governmental policy in all its details to the needs of the German Empire of to-day and the future is one which calls for the exercise of the highest attributes of statesmanship. No one doubts that the German people, with their highly trained intelligence, their industry, enterprise, and energy, will in due time surmount all difficulties and reach a basis of solid, enduring prosperity.

The vitality which still exists in the iron and steel trades, machinery, and other leading industries is fully attested by the exposition at Düsseldorf, which was opened on May 1 and is still in successful progress. Although representing only the manufactures of the Rhenish-Westphalian provinces, the exposition is conceded to be one of the most important and interesting of its class ever held in any country. American and English expert electricians, engineers, and machinists, who have visited it in large numbers, are unanimous in saying that it gives a new and impressive picture of Germany's high position among industrial nations and her power to meet on equal terms the competition of Great Britain and the United States in the markets of the world.

FRANK H. MASON,
Consul-General.

BERLIN, *September 27, 1902.*

SALABLE AMERICAN PRODUCTS FOR GERMANY.

Notwithstanding the industrial depression and commercial disturbances incident to the period of reorganization and adjustment to new conditions through which Germany is now passing, business in many lines, both domestic and foreign, is normally active and healthful. This is particularly true of the trade in food materials and many articles of household utility. As an experienced merchant recently said: "This is a good time to do business in Germany, if one only knows what is really needed and in demand." For the information of American manufacturers and exporters who may be seeking, more or less earnestly, to find a market for their products in this country, the following hints and suggestions, which have been obtained from merchants of standing and experience and confirmed by inquiries received as correspondence at this consulate, are respectfully submitted. Among the articles which appear to be now demanded in Germany, and in which a more or less prosperous export trade to this country can be developed by exporters in the United States who will take the trouble to secure good connections and proceed by correct methods, are the following:

Dried, smoked, and salted fish.—Salmon, halibut, herrings, sturgeons, eels, flounders, sprats, etc., are favorite articles of food in Germany, and as the native supply is always wholly inadequate they are relatively expensive. Smoked salmon, for example, costs from 20 to 30 cents per pound, and halibut is unknown except as a costly luxury. So inadequate is the supply that there is a large import of fresh fish of common varieties, which are dried, smoked, and otherwise cured here and sold at large profits. American codfish is recognized as superior to Scandinavian, but, being somewhat more expensive, it is received in limited quantities and classed as a luxury. There are caught in abundance along the Atlantic and Pacific coasts of the United States several ordinary varieties of fish, of which comparatively little account is made, at least as merchandise for export. In the opinion of competent dealers, this whole line of trade between the United States and Germany may be indefinitely increased. Thus far, the foreign supply for Germany has been almost wholly in the hands of Russia, the Netherlands, and Scandinavia, the only imports from our country in 1901 being 539 tons of fresh fish and 859 tons of pickled fish, whereas Great Britain alone sent to this country 22,333 tons of fresh fish, and the whole fish import of Germany was not less than 71,428 tons. The present scarcity and high prices of all kinds of meat give especial emphasis to the demand for fish, and the opportunity thus offered should not be left unimproved. The duty on cured fish is 3 marks (71 cents) per 100 kilograms (220 pounds).

Goose fat.—Another article of prime importance is goose fat, which is used throughout Germany by the working classes as a substitute for butter, both at table and for cooking purposes. Notwithstanding the large production of geese in Germany, the native supply is so inadequate that 6,431,247 live geese were imported last year from Prussia, Austria, and Italy, besides large quantities of dressed geese and goose fat from Poland, Austria-Hungary, and Denmark. The proportions of the trade may be inferred from the fact that one prominent dealer in Berlin is now ready to take from America, or wherever it can be produced in good marketable condition, 200,000 pounds per month, from November to February, both inclusive, of edible goose fat, at the current market rate. This is at present about 20 cents per pound in large wholesale shipments, the import duty being 10 marks ($2.38) per 100 kilograms (220 pounds), or, approximately, 1¼ cents per pound. Proposals, giving price f. o. b. New York or c. i. f. Hamburg or Bremen, sent to the care of this consulate, will be forwarded to the proper address and receive prompt attention.

Paper bags for certain kinds of merchandise.—In America, sacks or bags made of tough manila paper are used as packages for flour, Portland cement, and various other articles. Germans still pack cement in wooden barrels, which, in consequence of the high cost of wood in this country, are unduly expensive for the value of the material which they are to contain. Paper bags from America were introduced some time ago by one or more German cement factories and were fully approved, but their further use was prevented because the American makers could not furnish the required sizes or guarantee prompt delivery. If some enterprising maker of manila bags in the United States will take up the business seriously, produce the bags in sizes to contain specified quantities (in kilograms) of cement, flour, coffee, etc., and then establish a wholesale depot of his goods in Hamburg, it is practically certain that a large and permanent business could be built up. The duty on such goods is 12 marks ($2.85) per 100 kilograms, and double that rate if the bags are cloth lined. All bags destined for Germany must be arranged for metric weights in respect to contents. Such of these bags as are now used here are made principally by English and French firms, who send a traveling salesman once or twice a year to look after their trade.

Insulating materials for electrical appliances.—These, whether in the form of vegetable fibers, okenite, or various products of caoutchouc, are in large and constant demand in Germany. It is stated by persons familiar with the trade that certain American producers of insulating materials who sought entrance to the German market have made the mistake of giving the exclusive sale of their product to one electrical manufacturing company, which would import all it could use itself, but not make any special effort to extend sales among other firms or companies, which are naturally its competitors. It is stated that if American exporters in this line would open a direct wholesale branch in, say, Berlin or Cologne, as the Carborundum Company, at Niagara Falls, has so successfully done, they would secure thereby a large part of the German trade, particularly that of the numerous small electrical manufacturers who do not like to be dependent for any part of their material upon their more powerful competitors, and so resort to cheap, inferior insulating materials of European origin.

Fire extinguishers.—Extinguishers, which are so universally employed in the United States and Great Britain, have, for some reason, been to a much more limited extent adopted and put into use in Germany. As nearly as can be ascertained, only one extinguisher of any importance is made in this country, and that is said to be of inferior efficiency and at the same time more costly than the best extinguishers made in the United States. The German Postmaster-General has, however, lately given an order for 10,000 such extinguishers, to be used in buildings belonging to that Department. This will certainly give a new and definite impetus to the appreciation and use of fire extinguishers in this country, and it is more than probable that other departments of the Government may follow the lead thus taken by the Postmaster-General. These facts are cited to show that this is a favorable time for American makers of fire extinguishers to introduce and push their goods in this country. Due care should be taken, of course, to protect by patent any special features which are of value; but the special advantages of the American manufacturers will be their long experience, the high and fully established efficiency of their appliances, and the cheapness with which they can be manufactured and put on the market. Fire extinguishers which operate by ejecting a fluid are free of duty; those of other construction are subject to a small duty, not enough to be taken into serious account.

Paper for newspaper printing.—If there is any surplus news-paper stock in the United States, there is an open and ready field for it in Germany, where the consumption is steadily increasing and the native supply always rather below local requirements. The duty on imported print paper is $2.38 per 100 kilograms, and in order to build up a successful trade in this country a wholesale depot should be established at Hamburg or Berlin—preferably the former—where a permanent stock should be kept for the supply of newspaper publishers, many of whom, particularly in the smaller cities, would be glad to make contracts for a regular supply. Such a depot should have a clever, active traveling salesman to make a tour of the Empire once or twice a year and work up the trade. It is not probable that much can be done with American print paper through native firms now in the trade, most of whom are interested in European sources of supply, and would consider proposals from America, if at all, only to meet some temporary contingency.

Wood alcohol and crude acetate of lime.—It is stated that by reason of the failure of the notorious Trebertrocknung Gesellschaft last year, and the consequent disturbance in that branch of manufacture, there is now a scarcity of wood alcohol and crude acetate, the latter of which is used as a convenient vehicle for acetic acid. Both the materials named are largely consumed by the chemical industries of Germany, and, according to the information received at this office, the demand is at present unusually active.

Animal hair.—There is in Germany a large manufacture of brushes, felt, upholstery, and toys, which consumes vast quantities of bristles and the hair of various wild animals, such as hares, antelopes, deer, etc. A specialty of great importance in this line is the hair used for making wigs, beards, etc., for dolls and mechanical toys, the supply of which now comes mainly from Australasia. There is no duty on these materials, and if there is any available supply of them in the United States, at prices which can compete with those which prevail here, there ought to be in Germany a ready and permanent market. The subject might profitably be investigated on the spot by an expert familiar with qualities, values, and conditions of supply.

Axes and shovels.—There is in Germany a large and long-established trade in American axes, spades, shovels, mining picks, etc., the superior lightness and efficiency of which are fully understood. But this trade is all in the hands of two large importing firms, who, it is said, maintain an unduly exacting monopoly and charge extravagant prices. In these lines, it is probable that an American drummer could pick up a good many more or less important orders from dealers who have an established trade and would gladly cut loose from their present dependent position and open direct connections for future supplies with independent American manufacturers. The information on which this suggestion is based comes directly from persons concerned in and familiar with the whole economy of the trade, and is believed to be entirely trustworthy.

Oysters.—It is frequently remarked by the large number of Americans who visit Berlin each year that the oysters supplied here by hotels and restaurants are small, inferior in flavor, and exorbitantly dear. The question is constantly heard, why, with the regular fast steamship service between New York and the two leading German ports, no adequate, systematic effort has been made to supply the large German cities with the superior oysters which are so abundant and relatively cheap in the United States. Without attempting to answer this question or to explain the reasons for existing conditions, the following statement of the more obvious facts pertaining to the oyster trade of Berlin is submitted for the information of those who may be interested in the subject. Oysters are regarded in Berlin as a luxury of the highest class. They are rarely cooked, but are eaten raw in the half shell, as the first course of a formal luncheon or dinner. When served in restaurants, they cost from 50 to 75 cents per dozen. Almost the entire supply is imported from Holland and Great Britain. . English "natives," which, like those from Ostend, have the coppery flavor peculiar to most oysters of European origin, cost at wholesale in Germany 140 marks, or $33.30, per 1,000—that is, 3⅓ cents apiece, including import duty, which is 50 marks ($11.90) per 100 kilograms (220 pounds). It is stated that oysters of good quality are sold at wholesale in the shell at New York and other American ports for about 1 cent each. The commercial problem is, therefore, whether the 2⅓ cents difference between the wholesale value of an oyster at New York and in Berlin is not enough to cover the cost of packing, freight, and duty and leave a reasonable margin of profit. The subject would seem to be at least worthy of careful examination. It should be understood, however, that Europeans who have never been in America often prefer—or think they do—the coppery bivalves of European waters, and that the many delicious forms of cooked oysters, so highly esteemed in the United States, are practically unknown here and would have to be introduced. The experiment, if feasible at all, would be safest if made with the grades of shell oysters best adapted to being served and eaten raw.

Machine tools and machinery.—It is well known that Germany is now passing through a period of industrial depression, and has to a great extent restricted the erection of new manufacturing establishments, which, during the period from 1898 to 1900, made such large demands on the purveyors of American machinery and tools. It is also true that those imported lathes, planers, and milling and other machines have been used to reproduce themselves and to make many kinds of machinery and tools so excellent in quality and cheap in cost that Germany has become a self-supplying exporter of many such appliances which were formerly imported from the United States. But while all this is true, there is still a demand in this country for many special forms of machinery and other manufactures of iron, which is only apparent to those directly concerned in that class of trade. From a leading house of this class, whose specialty is the newer forms of American machinery, the following résumé of the more obvious recent demands has been obtained:

In Berlin and its vicinity, there is a call for the most improved machinery for making bolts, screws, rivets, and all that is included under the general category of boiler fittings. One firm will take six sets of such machinery, which must be of the latest and most improved construction. Steam pumps of a capacity to lift about 15,000 gallons per hour, with minimum outlay of power, would also be found salable in this country.

Machines for pressing oil from linseed, rape, sesame, palm, and other oleaginous seeds and nuts are understood here to be made of high efficiency and relatively cheap in the United States. So far as is known, the American machinery of this class has not been introduced here, and there would seem to be a promising field for it.

German rolling-mill managers now use phosphor bronze, Babbitt metal, and brass for the bearings, as journal boxes of rolls, which, as is well known, are subject to heavy frictional strain when large masses of metal pass between the rolls. It appears that none of the alloys now used for roll bearings are satisfactory; and, as a German iron master said recently, "If your people have anything new and better than what we are using, they could sell a shipload of it in Germany."

There are also inquiries for American tool steel, the superior quality of which has been revealed by the vast number of American machine tools and implements now in use here. But there seems to be a difficulty in obtaining a supply, or even quotations, from the makers of such steel in the United States. It is also well known that certain grades of American steel specially adapted for the construction of dynamos and other forms of electrical machinery are superior to anything produced and used for the same purpose here. As long as there was a large export of American electrical machinery to Germany, there would be, of course, no object in offering such materials; but now that this country has become self-supplying in that line, it may be worth while to cultivate and cater to the very tangible demand here for the specially prepared metals which are adapted to such manufacture.

Certain American firms, like the National Cash Register and Columbia Phonograph companies, which are represented here by large and finely appointed branch houses, have attracted great attention by the originality, ingenuity, and attractiveness of certain advertising devices which have been used in their show windows to draw the attention of the passing throng. In general, it may be stated that all such novelties adapted to advertising purposes, which are original and attractive, are in demand and will be found salable in this country. The same is true of many novelties for kitchen and household use, such as paring machines, carpet sweepers, wringers, ice-cream freezers, naphtha stoves, etc.

Among the correspondence received here through the American Machinery Company, of No. 74 Linden Strasse, Berlin, is a letter from a large and important firm in Warsaw, which has branch houses in Moscow, St. Petersburg, Odessa, and other trade centers, and does an extensive business throughout European Russia. The letter specifies in order the classes of machinery and various special kinds of apparatus which are now demanded by their Russian trade, for a supply of which they would gladly receive proposals from American manufacturers and exporters, viz, pumping and hoisting machinery, engines, boring and drilling machines for mines and blast furnaces, stationary and portable steam engines for factory and agricultural purposes, locomobiles and thrashing machines, gas motors, power pumps, equipment for grain elevators, slaughterhouses, and steam laundries, complete apparatus for creameries and the manufacture of butter and cheese, steam heating and ventilating appliances, locomotives for small auxiliary railways, and wagons with automatic discharging devices for loads of grain, seeds, and other firmly divided materials. Catalogues, circulars, or proposals concerning any of the above classes of merchandise will, if received here, be forwarded to where they will receive due attention.

Shoes.—Finally, there is the American shoe, which, having been fully introduced and properly handled, continues to gain ground in popular appreciation and steadily increasing sale. It has been stated in these reports* that at the beginning of April, 1901, there was opened at the junction of the principal retail streets of Berlin a large, handsome American shoe store, furnished and equipped throughout on the most approved American plan. Experienced salesmen, competent in German and English—even a colored bootblack from lower Broadway—were brought over to practice and teach American methods of conducting a retail shoe business. Two well-known brands of American-made shoes—one for women, the other for men—have been sold in all sizes, qualities, and styles, at a uniform price of 18 marks ($4.28) per pair. Although costly as regard rent and general running expenses, the store has been from the day of its opening so profitable that the same firm opened last spring a precisely similar establishment at Frankfort, and on October 15, this year, a third one at Hamburg, both of which latter have been, like the first, immediately successful. This pioneer firm, having the whole German field to choose from, naturally selected three of the most promising cities, but there remain Cologne, Leipzig, Stuttgart, Strassburg, Munich, Dresden, and Breslau, all large, progressive cities, where, from all that can be inferred, the same enterprise, if properly managed, might be successfully repeated. American shoes are also more or less generally sold by the more prominent and enterprising German retailers; but, as has been often explained, the only way to insure entire and certain success is to keep the business, from factory to final distribution, as nearly as practicable in American hands.

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*See ADVANCE SHEETS No. 1372 (June 20, 1902); CONSULAR REPORTS No. 263 (August, 1902).

It need hardly be repeated that in all the foregoing suggestions, whether relating to dried fish, fire extinguishers, goose fat, or machinery, the point should always be kept in mind to make everything as plain and easy as possible for the buyer. Americans seem generally unable to realize that a nation which aspires to do a large export trade must, as a rule, deliver its goods in the country where they are to be sold and consumed. Not only this, but they must be offered in language, weights, measures, and values which the merchants and people of the purchasing country can understand. The theory that catalogues and price lists in American weights, measurements, currency, and terms of payment will draw orders, provided the claim of superior quality is made strong enough, has been fatally exploded by experience. The Americans who have won conspicuous success in the German market have been those who have come here, studied the requirements of the trade, and then either set up their own depots and system of distribution or formed close working relations with German houses of high standing and established connections throughout the Empire.

Either this, or recourse must be had to the traveling salesman with his sample bag and persuasive address. For effective service, he should be fluent in German, with a knowledge of local trade conditions and an American training and experience in the art of describing, explaining, and selling the particular thing that he has to offer. He should be able to tell how large and heavy each article is in metric units, and what it will cost free on board at Hamburg or Bremen. Germany is traversed twice a year by salesmen from French, English, and Belgian exporting firms who can tell all these things, and if Americans are to successfully compete with them, they must be not less competent and enterprising, and must spare no effort to meet these competitors on equal terms.

FRANK H. MASON,
Consul-General.

BERLIN, *October 25, 1902.*

ALCOHOL MOTORS IN GERMANY.

The recent agricultural fair at Halle has shown the wonderful strides that Germany has made within the last eighteen months in alcohol motors. This is due to a great extent to the personal interest taken in the subject of the use and application of alcohol for trade purposes by the Emperor, and also to the low price at which this spirit for fuel purposes (containing about 90 per cent of pure alcohol) is furnished all over Germany—a quart costing only about 5 cents.

The great advantages of a spirit motor over the ordinary steam engine are that it is always ready for use, without preliminary warming up; it can be filled, oiled, and started in from two to three minutes; there is no constant supplying of coal and water, and no danger of fire or explosion; no permits are required from Government authorities, and there is no compulsory inspection; the spirit is easily obtainable in all districts; there is no smoke or smell; and the weight of a portable spirit motor is about one-half that of a portable steam engine of equal power.

With regard to cost, a large German firm that exhibited at Halle showed 6 to 8 horsepower portable alcohol motors for $973.30; 10 to 12 horsepower motors for $1,265.29; and 16 to 20 horsepower motors for $1,581.61. In the tests made, one trial showed a consumption of 0.42 kilogram (0.92 pound) of 86 per cent spirit and 0.37 kilogram (0.81 pound) of a mixture of one-fifth benzol and four-fifths 86 per cent spirit, in both cases per brake horsepower per hour. If our American automobile manufacturers wish to capture the German market with their lighter, better, and more stylish runabouts and pleasure wagons, I think they would do well to adopt alcohol as a fuel.

Oliver J. D. Hughes,
Consul-General.

Coburg, *October 3, 1902.*

ALCOHOL FROM THE JERUSALEM ARTICHOKE.

The price of combustible alcohol in France is nearly double what it is in Germany. In the latter country, it is chiefly the Irish potato that furnishes alcohol, while in France it is the beet root. The cultivation of the former costs nearly double that of the latter.

In commenting on these facts, a French writer recently called attention to a tubercle much neglected in France, much more rustic than the Irish potato, and of great saccharine richness—the "topinambour," or Jerusalem artichoke. It is easy and inexpensive to cultivate; it is not affected by dryness or dampness; it has no maladies; and it can be harvested when desired. In the most ordinary soil, the writer says, it will produce 300 quintals (66,138 pounds) of tubercles per hectare (2.471 acres), yielding 25 hectoliters (660.425 gallons) of alcohol at 20 francs ($3.86) a gallon, or a total of 500 francs ($96.50). The value of the by-product of these 300 quintals is also worth mentioning: 130 quintals (28,659 pounds) of pulp, excellent for fattening cattle and worth—valued at 2 francs (38.6 cents) the quintal—260 francs ($50.18), the leaves, about 70 quintals (15,432 pounds), in the form of ensilage, make a splendid fodder; the 3,000 to 4,000 stems when dried furnish a good fuel. It is stated that these by-products, if economically utilized, will almost pay the expense of culture, leaving the alcohol to bear only the expense of distillation. This alcohol can be substituted for oil in domestic and industrial uses, and the writer goes so far as to say that its cheap production will enable it in the future to compete with coal.

If this is true, it should prove a boon to French agriculture, for the coming harvest is the last one unaffected by the agreements made at the Brussels sugar conference—agreements which, if carried out, will virtually destroy beet-root culture in France.

Surely the suggestions herein given are worth a trial in America.

THORNWELL HAYNES,
ROUEN, *October 18, 1902.* *Consul.*

GERMAN CERAMIC INDUSTRY.

According to a German journal, the German manufacturers of earthenware are contemplating an amalgamation, at least as far as the sale of their wares is concerned. Although the output and sales of the manufactures of earthenware have increased, the net result has been rather unsatisfactory during the past few years, owing to the fact that the selling prices have constantly receded and in many cases have been less than the cost of production. Of course, there is a difference between those factories producing higher grade ware and those manufacturing staple articles for the masses. The former are always able to obtain relatively better prices for their goods, while the business of the latter remains very unsatisfactory. Several years ago, about thirty earthenware manufacturers combined to regulate the selling price of their products, but this combination did not prove effective. On the contrary, the result was the founding of a number of independent companies which underbid the combination. In order to meet the prices of these outsiders, the trust factories sorted their wares more carefully, and, evading the spirit of the agreement, though not the letter, sold a large part of their product as "refuse ware" at greatly reduced prices, hoping thereby to crush the competition from without. This, however, resulted in a general cutting of prices, and to-day the competition between the companies belonging to the trust is just as keen as between the trust and the independent companies. The result is that a number of large companies have gone into the hands of a receiver, others are liquidating voluntarily, and still others are continuing to operate their works at a loss.

On this account, it is intended to form a new combination, in order that the capital invested in the various works may be made to pay at least a reasonable interest. It is not intended to force up the selling prices unreasonably, but merely to prevent an evasion of the spirit of the combination.

WALTER SCHUMANN,
MAINZ, *September 30, 1902.* *Consul.*

MILK POWDER IN GERMANY.

A German inventor, it is reported, has discovered a method and constructed an apparatus which obviates the drawbacks formerly encountered in the preparation of milk powder. The apparatus evaporates milk to complete dryness at a temperature not exceeding 40° C. and without the application of a vacuum. The powder obtained, it is claimed, has the fineness of flour. Neither the taste nor odor of the milk is altered. Heated with water to from 60° to 70° C.—*i. e.*, to a temperature exceeding the melting point of butter fat—milk is reproduced which, on cooling, differs in no way from ordinary milk. By a special treatment, the inventor says he has succeeded in preventing the powder from turning sour; it withstands bacteria, mold, dampness, and changes of temperature. About 1 pound of powder is said to be obtained from 5 quarts of milk. The apparatus is easily manipulated and is capable of treating at least 2,600 gallons of milk per day. A sample of the powder obtained from skimmed milk, it is said, was found to contain 30 per cent albuminous matter, 49 per cent lactic sugar, 1 per cent fat, 7½ per cent salts, and 6½ per cent moisture.

OLIVER J. D. HUGHES,
COBURG, *October 3, 1902.* *Consul-General.*

NEW FOOD FOR LIVE STOCK IN GERMANY.*

During the past few years, experiments have been made in the city of Strassburg, Alsace, Germany, with a new food for horses and cattle, called "Blut-Kraftfutter" (blood-strength fodder), consisting of steam-dried, sterilized blood (prepared under the control of a municipal veterinary surgeon), chaff or the hulls of grain finely ground, the husks of peanut kernels, and also the inner lining or skin of the peanut shells, and molasses. A per cent of phosphates is also added to the preparation.

These ingredients are thoroughly mixed and dried, and a certain portion of molasses (which has been heated to make it more liquid) is added. After this has been well mixed and dried, another portion of molasses is added, and after the final mixing and drying the preparation is ready for the market and is sold in bags of 75 kilograms (165 pounds) at a cost of 11.50 marks ($2.75) per bag, retail.

The manager claimed that to use the whole peanut would make the preparation too expensive.

The manager of the Strassburg slaughterhouse, who is also manager of the blood-meal factory, informed me that the chaff (or "mais") is imported from America and the molasses is purchased in Baden, being a product of the beet-sugar factories.

The dried-blood meal, it is claimed, contains on an average 20 to 22 per cent of protein and fat, while oats, according to the tabulated statement of Wolff, contain on an average only 15.2 per cent of protein and fat.

The assurance is given that this preparation can be preserved for any length of time, and that it will not deteriorate with age.

As regards the method of feeding, it is advisable—as horses and cattle are often very sensitive to a change of food—to start on one-half a pound per day, thoroughly mixing it with the usual food, and to increase this portion daily until 5 or 6 pounds are used per day, diminishing the quantity of the usual food accordingly.

For milch cows, 3 pounds per day can be used; for fattening cattle, 7 pounds per head per day; and for sheep and swine, three-fourths of a pound per day per 100 pounds of living weight.

Some horses have been given two-thirds of their daily fodder in blood meal, but the company recommends that the quantity fed should not exceed one-half of the daily allowance of food.

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* In reply to inquiries from a Chicago firm, to whom ADVANCE SHEETS have been sent.

In a circular which the company has issued are testimonials from owners of many horses, stating that they have experimented with this blood-meal preparation, and the result shows a saving of 31½ pfennigs (8 cents) per horse per day; also similar statements from milk dealers, who claim a gain of 40 pfennigs (10 cents) per cow per day in the saving of other foods and the increase of milk given through the use of this blood meal. It is said that the cattle appear remarkably well.

During the past year, the military authorities at Strassburg have been feeding this blood meal to the horses of regiments stationed there, as an experiment, and the result seems to give satisfaction. The manager of the factory believes that this preparation will soon be ordered to be fed to all army horses in the country, in which case the company will be confronted with the necessity of establishing factories in many of the large cities of northern Germany, where slaughterhouses are already located.

At the present time, the demand for this dried-blood-meal preparation is far greater than the daily capacity of the factory, for the blood of 300 cattle—the average number slaughtered daily at the Strassburg slaughterhouse—is not sufficient.

BENJAMIN F. LIEFELD,
Vice-Consul.

FREIBURG, *October 10, 1902.*

EXPOSITION OF HYGIENIC MILK SUPPLY AT HAMBURG.

Under date of October 27, 1902, the Department has received from the German embassy, Washington, notice of the General Exposition of Hygienic Milk Supply to be held at Hamburg from May 2 to May 10, 1903. It is asked that the attention of institutions and of persons interested be called to this exposition. Programmes are inclosed. The exposition will embrace:

Section A.—For milk production: (1) Exhibit of limited number of milch cows of known race; (2) stable fittings and implements; (3) regimen and hygienic food; (4) technics of milk, tests, and execution of; (5) management of milk in stable and pasture; (6) personnel of milking and stable (clothing, health, and supervision of the same).

Section B.—Veterinary control of the condition of milch cows and of milk: (1) Legislation; (2) management of contagious outbreaks (with demonstration); (3) diseases of milch cows; (4) special diseases; (5) unwholesome food plants and drinking water; (6) secretion through the milk of medicinal stuffs; (7) sanitary management; (8) disinfection of stalls (means and apparatus).

Section C.—(1) Conveyance of milk, land and water ways, railways; conveyance and distribution in cities; (2) cleansing, spinning, cooling, pasteurizing, sterilizing, and concentrating (condensing) milk; (3) arrangements for measuring and weighing; (4) cleansing apparatus for flasks; (5) machinery for bottling, pouring, and sealing.

Section D.—Exhibit of management and sale of milk, wholesale and retail trade, with complete furnishings.

Section E.—Milk legislation and administration: (1) Laws, ordinances, decrees, and judgments; (2) police supervision of milk traffic (removal, previous examination, preserving, conveyance); (3) chemical and bacteriological inspection—(*a*) model laboratory, working; (*b*) instruments and tools for laboratory.

Section F.—Scientific: (1) Means of instruction with scientific demonstration; (2) scientific instruments and tools for milk laboratories; (3) literature, statistic and graphic exhibitions.

Section G.—Milk preparations: (1) Condensed and prepared for long keeping for use in the army and navy; (2) milk for infants; (3) for therapeutic purposes; (4) other foods and preparations produced from milk.

Section H.—Machinery and apparatus for the treatment of milk in the household.

Space for exhibits is rated per square meter (1.196 square yards), as follows:

Location.	Cost.	
	Marks.	
Main floor	10	$2.38
Side rooms	5	1.19
Open air	3	.71

An additional charge of 10 to 50 per cent is made for sites with four sides exposed; with three sides exposed, 5 to 25 per cent.

Applications of intending exhibitors should be made not later than February 15, 1903, to the Geschäftstelle in Hamburg, 6, Kamp Strasse 46. Objects to be exhibited are to be sent and removed at the expense and risk of the exhibitor.

FORESTRY IN GERMANY.

In the preservation, development, and economical management of forests, the Germans, perhaps, excel any other nation. The Government, as well as the people, recognize that forests have not only a commercial worth, but a national economic value of utmost importance. The German forests, as a rule, are free from weeds, undergrowth, washouts, and dead and decayed wood. High stumps are a rarity; the trees are sawed about 6 to 12 inches from the ground, thereby adding to every log (of the first cut) 1 to 2 feet in length, compared with what the same tree would yield if cut on the American style. If our people would fell timber as the Germans do—as close as possible to the ground—it would save millions of feet of lumber per year.

In most cases, timber in Germany is cleared in large patches and not, as is too common with us, a tree here and the next one, possibly, 100 yards away, leaving the tops to rot. Here, the patch cut is cleared for plowing and cultivating purposes. Worn ground is used for setting out saplings; in many instances, these tracts are surrounded by a single wire fence, and at several places are marked with signboards bearing such words as "Schonung 1900," meaning "protected (by law) 1900," this being the year in which the trees were planted.

Imperial statistics for 1900 show that Germany had 34,569,926 acres of wood; in 1883, there were 34,353,748 acres; and in 1893, 34,473,296 acres. The figures for 1900 thus show an increase, as compared with 1883, of 216,178 acres.

Large forests are usually under the care of foresters—men who have made the matter a vocation. Germany has seven academies and five schools for the study of forestry. The general duties of a forester are:

1. To protect the forest against damage by persons in the way of stealing, cutting, or unwarranted trespassing.
2. To protect against the ravages of hares, deer, rabbits, insects, or other animals; to prevent illegal hunting—acting, as it were, in the capacity of game wardens.
3. To cause the destruction of weeds and other injurious undergrowth.
4. To devise means against frost, fires, washouts, winds, etc.
5. To superintend the cutting and removing of wood.

JOHN E. KEHL,
Consul.

STETTIN, *October 6, 1902.*

GERMAN FIRE EXTINGUISHER.

During the past year, several interesting and instructive experiments were made in Bremen with different fire extinguishers. The most successful of these trials took place recently in the presence of several directors of the North German Lloyd and other steamship companies and many insurance men. The new apparatus, called the "Excelsior," consists of a metal cylinder, containing about 5 quarts of liquid bicarbonate of soda, in which is a small auxiliary perforated cylinder incasing a glass tube filled with acid. Its size and weight are such as require but little strength and skill in managing it. Before using, the Excelsior must receive a blow sufficient to break the glass tube, permitting its contents to mix with the bicarbonate of soda, thus forming carbonic acid, which drives out the liquid through the hose or spout attached for such purpose with tremendous force. This solution is claimed to have a much greater extinguishing power than water, and, in addition, it lessens the smoke.

Three very successful experiments were made. First, a small wood building, with the walls smeared with tar, was set ablaze, and when the heat had reached an intense point, the fire was put out with the use of two apparatus. Next, a pile of wood, at a glowing heat, was extinguished in three-fourths of a minute. To prove the thorough efficiency of the device in destroying smoke as well as fire, a third experiment was made. A barrel of tar was poured out in the open and set afire. The flames produced a thick, black cloud of smoke. The extinguisher had hardly been put into action when the flames and the smoke began to grow less and soon were completely extinguished and smothered without using so much as half the contents of one apparatus. I am informed that the fire extinguisher is manufactured in Berlin.

HENRY W. DIEDERICH,
Consul.

BREMEN, *October 9, 1902.*

ELECTRIC FIRE PUMP IN ROUEN.

The electric fire pump spoken of in previous reports from this office* is composed of a centrifugal pump (Thiron and Sou's system) and of an 8-horsepower motor, which gives normally 2,000 revolutions per minute. A continuous current of 525 volts can be applied. This motor is well covered, so as to prevent all penetration of water. Above are two bobbins. On one is wound the wire upon which the current is received, the extremity being exposed in such a manner as to allow connection with a hook suspended from the tram or electric-light wire; on the other bobbin is wound the return wire, the free end being connected with a cast-iron block to be fastened to one of the tramway rails. There is beneath the covering a compartment containing two circuit breakers, a circuit closer, and a commutator.

To start the apparatus, it is only necessary, after connecting the two wires to the line giving the energy, to close the circuit and start it running slowly with the rheostatic guide; the guide being fastened to the circuit breaker, the motor runs normally. The time necessary for starting is about a minute.

The bobbins on which are wound the conductors can receive 200 meters (656.167 feet) of insulated wire; if to this is added the 200 meters of hose on the reel and the 35 meters (114.83 feet) to which the water can be thrown, it is seen that a distance of 435 meters (1,427.16 feet) can be covered. The distance that the water can be thrown,

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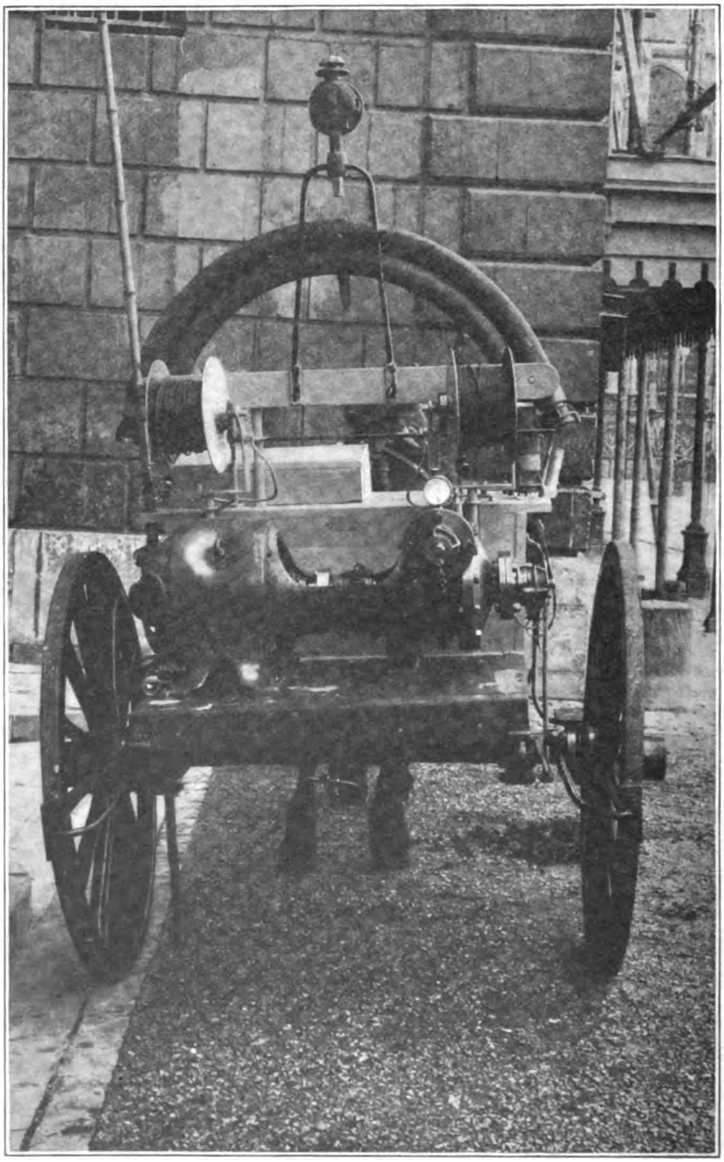
*ADVANCE SHEETS No. 1122 (August 24, 1901) and No. 1413 (August 5, 1902); CONSULAR REPORTS No. 253 (October, 1901) and No. 265 (October, 1902).



ELECTRIC FIRE PUMP INVENTED BY M. LEFEBVRE, OF ROUEN, FRANCE.

nearly 115 feet, is accomplished with an orifice of 18 millimeters (0.7 inch) and a volume of 350 liters (92.46 gallons) a minute.

The whole machine can be placed on a handcart or on a little two-wheeled wagon drawn by one horse. Its total weight, with accessories and two men on the seat, is about 1,040 kilograms (2,292.78 pounds). The motor and pump are not longer than a meter (39.37 inches), and are about half a meter (19.685 inches) wide and half a meter high.

Behind the machine is a reel capable of holding 300 meters (984.25 feet) of hose, two lances, a ladder with hooks, an ax, a hydrant key, a nozzle, etc. The weight of this reel, equipped, is 330 kilograms (727.518 pounds).

The idea of this pump, which is the only one of its kind in France, if not in the world, was suggested to M. Robert Lefebvre, the captain of the Rouen Fire Company, by a conversation he had last year with a German engineer at the Berlin Fire Extinguishing Exposition. The latter had conceived the idea of an electric pump for cleaning the walls of buildings, etc. If sand thrown by an electric pump could clean buildings, why could not water thrown in the same manner extinguish fire? In the solution of this question, the electric fire pump was born.

THORNWELL HAYNES,
Consul.

ROUEN, *October 15, 1902.*

WAGES IN FRANCE.

A comprehensive work on the scale of wages paid to different classes of workmen has been issued recently by the bureau of public works. An interesting résumé, by M. A. de Foville, has come to my notice, and I extract from his article the following matter:

By the terms of law of 1899, all contractors undertaking public works are bound to the observance of a certain maximum for the length of the day's work and a prescribed minimum for wages paid to the laborer.

The rate of wages is based upon the "normal and current rate" of labor in the place specified. The rate is to be obtained by referring, if possible, to existing agreements between syndicates and workmen of the locality, or, in case of nonexistence of such agreement, by the appointment of mixed boards, consisting of an equal number of employers and workmen. Lists made in this manner are printed and distributed to the public. The tables thus obtained compose the first part of the book issued by the board. The branches of the public service which furnish the material from which this work is compiled are the bureaus of bridges and roadways, artillery, engineers, and Government factories. There are no less than 166 professions considered—apprentices, masons, carpenters, blacksmiths, cart drivers, and so on through a long scale.

The wages of the apprentice, who receives the least remuneration, vary from 8 centimes (1.5 cents) per hour in Pont Avin, Finistère, to 10 centimes (1.9 cents) in Chartres and 35 centimes (6.7 cents) at Lyons and Sathonay, in the Ain.

For unskilled labor, the extremes are 15 centimes (2.9 cents) in Vannes to 60 centimes (11.5 cents) at Paris, in the Government factories. A locksmith receives 75 centimes (14.4 cents) in and near Paris. The commune of Dormans, in the Marne, alone pays the same rate, while similar labor is paid only 30 centimes (5.8 cents) per hour at Breve, Mirande, Baréges, and Albi, and still less at Saint Jean Pied de Port, in the Lower Pyrenees, where the price ranges from 25 to 29 centimes (4.8 to 5.6 cents).

Carpenters are paid 90 centimes (17.3 cents) at Paris and 75 centimes (14.4 cents) at Havre. They are contented in several towns in the south of France with 30 centimes (5.8 cents), and at Saint Jean Pied de Port, where low salaries seem to prevail, with 25 centimes (4.8 cents).

The highest wages are naturally commanded in Paris, where 1 franc (19.3 cents) per hour is paid to the following workmen: Masons, planers of floors, art ironsmiths, tracers of iron molding, decorators, gilders, and molders. Plasterers receive 1.10 francs (21.2 cents); stone polishers and floor joiners working in bitumen, 1.20 francs (23.2 cents); fine carpenters, 1.40 francs (27 cents); and stucco workers, 1.50 francs (29 cents). If these workmen, who are little short of artists, could obtain work for three hundred days in the year at 15 francs ($2.90) per day, they would receive as much as an under secretary.

These examples give a general idea of the scope of the work under consideration. The second part treats of wages and length of day's work of a certain class of laborers in manufacturing towns in France and Algeria.

The following is a table of the mean wages paid in 167 towns to 43 different classes of laborers:

Locality.	Per hour.				Per day.			
	1896.		1901.		1896.		1901.	
	Francs.		*Francs.*		*Francs.*		*Francs.*	
Paris	0.67	$0.13	0.71	$0.14	6.37	$1.23	6.93	$1.33
Other towns	.36	.07	.38	.07	3.15	61	3.92	.76

This indicates a rise in wages—particularly in Paris. Nevertheless, the wages of Paris stonecutters,. roofers, and ornamental sculptors have been diminished a few centimes per hour since 1896; the same may be said of coppersmiths, plumbers, and sawyers.

The following table, based in a general way on tables formerly required of mayors by the Government, gives an idea of the gradual rise in wages outside of Paris in the following occupations: Excavators, masons, painters, carpenters, plumbers, horseshoers, wheelwrights, saddlers, and shoemakers:

Mean wages per day for the nine classes mentioned.

	Francs.	Cents.
1853	1.99	=38.4
1874	3.02	=58.3
1892	3.83	=73.9
1896	3.91	=75.4
1901	4.02	=77.5

Per cent of increase based on figures in 1901.

	Per cent.
1853	50
1874	75
1892	95
1896	97
1901	100

Official statistics at Paris furnish tables reaching much farther back. The following table, treating of the building industry, begins early in the nineteenth century and ends with the same:

Price of wages per hour in Paris.

Description.	1806.		1842.		1852.		1873.		1900.	
	Centimes.	*Cents.*	*Centimes.*	*Cents.*	*Centimes.*	*Cents.*	*Centimes.*	*Cents.*	*Centimes.*	*Cents.*
Masons	32.5	6.3	41.5	8	42.5	8.2	55	10.6	80	15.4
Stonecutters	32.5	6.3	42	8.1	42.5	8.2	55	10.6	80	15.4
Stone polishers	32.5	6.3	47.5	9.1	50	9.6	75	14.4	120	23.2
Roofers	55	10.6	55	10.6	67.5	13	75	14.4	85	16.4
Carpenters	30	5.8	40	7.7	50	9.6	60	11.5	90	17.3
Joiners	35	6.7	32.5	6.3	35	6.7	50	9.6	70	13.5
Ironsmiths	50	9.6	50	9.6	50	9.6	70	13.5	80	15.4
Excavators	22.5	4.3	27.5	5.3	27.5	5.3	40	7.7	55	10.6
Mason's apprentice	20	1.9	24.5	4.7	26	5	35	6.7	50	9.6
Roofers	30	5.8	40	7.7	45	8.7	50	9.6	55	10.6
Locksmith's aid	....	....	22.5	4.3	22.5	4.3	40	7.7	52.5	10.1

W. P. ATWELL,
Consul.

ROUBAIX, *October 11, 1902.*

REDUCTION OF HOURS OF LABOR IN FRANCE.

On March 30, 1900, a law went into operation in France limiting the hours of labor to ten hours and thirty minutes per day in all factories employing mixed help—that is to say, employing women and children as well as men. A report filling twelve columns of the Journal Officiel has just been made on the first year's working of this law. Other shops, employing only men, are governed by a law enacted under the Republic of 1848, prescribing a maximum of twelve hours' work. The new law necessarily caused a readjustment of wages, resulting in many strikes. One large establishment changed from work by the day to piecework, causing a strike which lasted six months, when the men accepted the terms offered by their employers. Another result of the law was that many employers at once discharged all the women and children, and thus escaped the operation of the new act. This was a great hardship, as, besides depriving a great many thousand people of needed work, it took from a large number of children their only means of learning a trade.

The report sets forth that in the shops where the employment of women and children was continued, with the reduced hours of work, there was an alarming diminution of the product and a consequent loss of profits. In many branches of industry, such as the reeling of silk, nearly all the employees are women and young girls. In these, the number of hours of labor was cut down according to the new law. During the year, the factory inspectors managed to secure 4,572 convictions for violations of the law by employers; 1,019 violations were for employing children under 13 years of age, generally from 9 to 11, principally in the glass works.

The law permits the employment of children 12 years of age, provided they show a certificate of having attended primary school four years and are in vigorous health, attested by the certificate of a medical officer.

A division inspector is authorized to permit children and women to work twelve hours per day in such business as canning or preserving fruit, where the season is short and the material perishable.

Fault is found by large employers of labor with the fact that establishments employing but twenty persons or less, and using neither steam nor electricity, are exempt from the operation of the law and thus have an advantage over other shops. In such shops, the men can and do work twelve and thirteen hours.

Employing classes complained bitterly of this law during the first few months of its enforcement. They now assert that if its operation has not been more disastrous to all the classes that it affects, it is because the last year, following the great exposition of 1900, was a year of general industrial depression.

JOHN C. COVERT,
Consul.

LYONS, *October 18, 1902.*

FRENCH CAPITAL IN FOREIGN COUNTRIES.

A few months ago, the Minister of Foreign Affairs of France sent a letter to French consuls in the different quarters of the world instructing them to report on the amount of money invested by Frenchmen in their various consular districts. France has always had the reputation of being an investing country, a dividend-receiving country, a nation of almost inexhaustible resources. The result of the consular investigations fully sustains this reputation, showing that the foreign investments of France aggregate in round numbers nearly 30,000,000,000 francs—close to $6,000,000,000.

The following are the returns from the various countries:

Country.	Amount.	
	Francs.	
EUROPE.		
Spain	2,974,000,000	$573,982,000
Portugal	900,000,000	173,700,000
England	1,000,000,000	193,000,000
Belgium	600,000,000	115,800,000
Luxemburg	62,000,000	11,966,000
Netherlands	200,000,000	38,600,000
Denmark	131,000,000	25,283,000
Norway	290,000,000	55,970,000
Sweden	123,000,000	23,739,000
Germany	85,000,000	16,405,000
Russia	6,966,000,000	1,344,438,000
Switzerland	455,000,000	87,815,000
Monaco	158,000,000	30,494,000
Italy	1,430,090,000	275,990,000
Austria-Hungary	2,850,000,000	550,050,000
Roumania	438,000,000	84,534,000
Bulgaria	48,000,000	9,264,000
Servia	201,000,000	38,793,000
Greece	283,000,000	54,619,000
Turkey in Europe	1,818,000,000	350,874,000
Total	21,012,000,000	4,055,316,000
ASIA.		
Asiatic Turkey	345,000,000	66,585,000
Asiatic Russia	60,000,000	11,580,000
Persia	2,000,000	386,000
British Asia	22,000,000	4,246,000
Siam	10,000,000	1,930,000
China	651,000,000	125,643,000
Japan	22,000,000	4,246,000
Total	1,112,000,000	214,616,000

Country.	Amount.	
	Francs.	
AFRICA.		
Abyssinia	32,000,000	$6,176,000
Egypt	1,436,000,000	277,148,000
Tripoli	1,000,000	193,000
Tunis	512,000,000	98,816,000
Morocco	6,000,000	1,158,000
Canary Islands	2,000,000	386,000
Kongo State	72,000,000	13,896,000
British Africa	1,592,000,000	307,256,000
Portuguese Africa	40,000,000	7,720,000
Total	3,693,000,000	712,749,000
NORTH AMERICA.		
United States	600,000,000	115,800,000
Canada	138,000,000	26,634,000
Newfoundland	20,000,000	3,860,000
Mexico	300,000,000	57,900,000
Central America	42,000,000	8,106,000
Cuba	126,000,000	24,318,000
Haiti	78,000,000	15,054,000
Porto Rico	34,000,000	6,562,000
British Antilles	10,000,000	1,930,000
Total	1,348,000,000	260,164,000
SOUTH AMERICA.		
British Guiana	1,000,000	193,000
Venezuela	130,000,000	25,090,000
Colombia	246,000,000	47,478,000
Ecuador	5,000,000	965,000
Peru	107,000,000	20,651,000
Bolivia	70,000,000	13,510,000
Chile	226,000,000	43,618,000
Argentine Republic	923,000,000	178,139,000
Uruguay	219,000,000	42,267,000
Paraguay	1,000,000	193,000
Brazil	696,000,000	134,328,000
Total	2,624,000,000	506,432,000
Oceania and the Philippines	57,000,000	11,000,000
Grand total	29,846,000,000	5,760,878,000

M. Paul Leroy-Beaulieu, the eminent writer on political economy, criticises these figures in l'Economiste for October 18, 1902, declaring that in some cases they are mere guesswork and in others misleading, as they take the nominal for the real value of stocks owned by French citizens. "The bonds in the Corinth Canal," he says, "are made to figure at a valuation of 60,000,000 francs ($11,580,000), when in reality they are worth hardly more than 1,000,000 francs ($193,000). * * * Other cases might be cited where the actual value is not more than 20 or 50 per cent of the figures given." Yet he thinks that these statistics are important as giving a valuable indication of the extent of French investments abroad. M. Beaulieu himself estimates the investments of France abroad, including her colonies, at from 33,000,000,000 to 34,000,000,000 francs, or between

$6,000,000,000 and $7,000,000,000. In the one colony of Algeria, he thinks the French people have invested not less than 1,500,000,000 francs ($289,500,000), about 650,000,000 francs ($125,450,000) of which are in railroads. In Spain, where many enterprises are owned by foreigners, the French people have investments in commercial houses amounting to nearly $16,000,000. The report credits France with owning three-fifths of the stock in the great Spanish Northern Railroad and four-fifths of the stock in all the other roads in Spain.

It will be seen that Russia figures in the above list for nearly 7,000,000,000 francs ($1,351,000,000). Most of this vast sum has been loaned during the last five years, or since the treaty of alliance between that country and France. It was largely loaned to the Russian Government for the building of the Trans-Siberian and other railroads. Important sums have also been invested by Frenchmen in Russian mines and manufactures. Russia has a large interest debt to pay to France annually, far in excess of the trade balance. It is worthy of observation that since the contracting of these obligations by Russia, the imports of French manufactures into Russia have materially diminished, either on account of the high tariff encountered at the Russian frontier or because of an instinct which prevents the Russians from augmenting the large sum of money which must in any event be paid to France. French statesmen have several times complained of the meager showing of Russian imports from France, as compared with those from other countries, and Russia's answer has invariably been to ask France to lower her duties on Russian wheat.

Great Britain and the United States do not figure very largely among the nations possessing investments of French capital, they being among the strongest capitalistic countries of the world. The first is set down for 1,000,000,000 francs (nearly $200,000,000) and the second for $116,000,000 in round numbers. But no one knows exactly how much French capital is invested in English securities or deposited in English banks. The talk of imposing an income tax in France has driven a great many Frenchmen to seek English investments.

JOHN C. COVERT,
Consul.

LYONS, *October 22, 1902.*

STREET ARCHITECTURE IN PARIS.

New regulations concerning the erection of buildings in Paris have just been issued by the municipal surveyors, as the decrees hitherto in force (though they dated no farther back than 1882 or 1884) did not satisfy modern requirements in the matters of hygiene, comfort, and luxury.

The height of buildings is thus fixed: If the road is less than 12 meters (39 feet) wide, the height of the building must not exceed the width of the street by more than 6 meters (19½ feet). On a roadway 12 meters wide, the house may therefore be 18 meters (59 feet) high, and for every additional meter in the breadth of the road a quarter of a meter (about 10 inches) may be added to the height of the house until the limit of 20 meters (nearly 66 feet) to the eaves is reached; but no building may exceed that.

In all dwellings, whether situated on a public or private road or in a courtyard, the height of the ceiling of the ground-floor apartment, and also that of the entresol, shall not be less than 9 feet 2 inches.

Projections—bases of columns, balconies, corbels, bow windows, etc.—are subject to certain general regulations, which may be modified in special cases. Thus, if a roadway is 52 feet or more wide, the regulation width of the balconies may be increased by one-fourth.

A new and useful clause in the decree provides that any shutter, blind, or sunshade placed not more than 10 feet above the pavement must either be within the body of the wall or must not open outwards.

There are also minute regulations concerning verandas, awnings, sun blinds, outside lamps, cornices, and signs.

JOHN K. GOWDY,
Consul-General.

PARIS, *October 29, 1902.*

COAL STRIKE IN FRANCE.

On October 7, the National Federation of the Miners of France met in full committee at Paris to discuss the question of a general strike. After the meeting, the national committee of mines published a manifesto addressed to all miners in France, stating that as the committee of coal operators had refused to nominate a commission to discuss with the workmen's delegation questions relating to a minimum rate of salary, as well as mining regulations and organization, a general strike had been decided for the morning of the 9th of October.

Mr. Combes, president of the council of ministers, telegraphed immediately to the prefects of twelve Departments affected by the proposed strike, to hold the military forces at the disposition of the Government, according to the plan elaborated by the Waldeck-Rousseau ministry.

Before leaving Paris, the committee of the National Federation of Miners addressed a letter to the president of the council of ministers, stating their grievances anew, and closing by an enumeration of their demands, which include a minimum salary, eight hours' work, miners to be delegated to watch over the safety of the mines, contracts, and pension of 2 francs (38 cents) per day, after thirty years' service and having attained 50 years of age.

While many miners in this district have struck in obedience to the call of the national committee, there is a large contingent demanding protection in the exercise of their right to continue work. On the 8th instant, 4,000 miners at the Auzin mines had signed a petition to be protected in the continuance of their labor. It is said that at least two-thirds of the mines in that region have manifested a desire not to follow the strike.

The union of nonstrikers, or "jaunes," as they are called to distinguish them from the "rouges," or strikers, distributed 20 revolvers and 1,000 cartridges to each section of the Auzin mines, after an attack by strikers on the night of the 8th. Instructions were given to the miners, however, to use them only in defending their homes.

On October 11 Mr. Paul Lanoir, secretary-general of the Company of Independent Workmen, or jaunes, was received by the president of the council of ministers and protested formally against aggressions of the rouges against the jaunes. It is said unofficially that the president of the council asked Mr. Lanoir to suspend the distribution of arms among the jaunes. Mr. Combes is said also to have assured Mr. Lanoir that the right to work would be insured by the execution of measures against strikes agreed upon by the Waldeck-Rousseau ministry.

It is said that the large iron works at Denain and Auzin, which require from 140 to 150 carloads of coal and coke per day, are running short of fuel and will be compelled to close in the course of a few days. If this is true, 4,000 workmen will be deprived of work.

These are some of the first fruits of the coal strike in the north of France.

W. P. Atwell,
Consul.

Roubaix, *October 13, 1902.*

THE COAL INDUSTRY.

The great coal strikes in the United States and France, and the increased shipments of British coal in consequence, give a peculiar interest to a return issued the other day by the British Board of Trade. This return gives statistical tables relating to the production, consumption, imports, and exports of coal in the British Empire and principal foreign countries from 1883 to 1901. From this return, the statistics of which are very elaborate, the following excerpts are taken and summaries are made, the English money values being given in their American equivalents:

The following statement shows what has been the production of coal in the five principal coal-producing countries of the world in 1899, 1900, and 1901:

Year.	United Kingdom.	Germany.	France.	Belgium.	United States.
	*Tons.**	*Tons.*†	*Tons.*†	*Tons.*†	*Tons.**
1899	220,095,000	101,640,000	32,256,000	22,072,000	226,554,000
1900	225,181,000	109,290,000	32,721,000	23,463,000	240,966,000
1901	219,047,000	‡108,417,000	‡31,613,000	‡22,074,000	‡260,929,000

* Ton of 2,240 pounds. † Metric ton of 2,204 pounds. ‡ Provisional figures.

It will be seen that the amounts produced in 1901 were in most cases less than in the preceding year, although the production of the United States still continues to increase, and has now, for three consecutive years, exceeded that of the United Kingdom. The production of Germany represents less than one-half, and that of France and Belgium together less than one-fourth, of the production of this country.

The total known coal production of the world (exclusive of brown coal) is now nearly 700,000,000 tons (of 2,240 pounds) per annum, of which the United Kingdom produces rather less, and the United States rather more, than one-third.

As compared with its population, the production of coal in the United Kingdom still surpasses that in the United States. It amounted to 5½ tons per head of the population in 1900 and 5¼ tons per head in 1901, while in the United States it is still only just over 3⅓ tons per head. In Belgium, it also amounts to about 3⅓ tons per head; in Germany, to rather less than 2 tons per head; and in France, to about four-fifths of a ton per head.

The very slight rise in price which has accompanied the enormously increased output of the United States in recent years is very striking, and it is of interest to put side by side the prices of coal in that country and in the United Kingdom now and ten years ago. This is done in the following table, where figures are given for the three years 1889–1891 and 1899–1901:

Country.	1889.	1890.	1891.	1899.	1900.	1901.
	Per ton.	*Per ton.*	*Per ton.*	*Per ton.*	*Per ton.*	*Per ton.*
United Kingdom	$1.55	$2.01	$1.95	$1.84	$2.63	$2.28
United States	1.28	1.26	1.28	1.14	1.29	*1.35

* Provisional figures.

The following table shows the excess of exports over imports of the three principal coal-producing and coal-consuming countries of the world for 1900:

Country.	Imports.	Exports.	Excess.
	Tons.	*Tons.*	*Tons.*
United Kingdom	10,000	58,405,000	58,395,000
Germany	8,034,000	18,055,000	10,021,000
United States	1,903,000	8,295,000	6,392,000

The following are the figures for 1901:

Country.	Imports.	Exports.	Excess.
	Tons.	*Tons.*	*Tons.*
United Kingdom	7,000	57,783,000	57,776,000
Germany	6,790,000	17,893,000	11,103,000
United States	1,916,000	7,383,000	5,467,000

The consumption of coal by the countries named is shown by the following table:

Country.	1901.	1900.
	Tons.	*Tons.*
United States	*255,462,000	234,951,000
United Kingdom	161,368,000	166,786,000
Germany	*97,314,000	99,269,000
France	*44,631,000	46,123,000

* Provisional figures.

It will be seen from the above figures that the total consumption of coal in the United States now surpasses (as does the production) that in any other country. But the United Kingdom still takes the lead in consumption (as she does in production) per head of the population, as the following table for 1901 shows:*

	Tons.
United Kingdom	3. 89
United States	3. 29
Belgium	2. 81
Germany	1. 71
France	1. 15
Austria-Hungary	. 40
Russia	. 15

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* United Kingdom and United States, ton of 2,240 pounds; other countries, metric ton of 2,204 pounds. The consumption of Austria-Hungary is for the year 1900. The figures for the United States, Belgium, Germany, France, and Russia are provisional.

The following table gives the values of the coal produced:

Country.	1883.	1900.	1901.
United States	$166,140,000	$319,680,000	*$463,350,000
United Kingdom	230,270,000	608,265,000	512,435,000
Germany	83,405,000	241,515,000	*253,815,000
France	52,210,000	98,360,000	....
Belgium	36,955,000	81,695,000	....

* Provisional figures.

It will be seen on comparing the tables above that, although the United States exceeds the United Kingdom in total production and in consumption, the latter exceeds her in the value of the coal mined.

The average value per ton of British and American coal is here shown:

Description.	1883.	1900.	1901.
British	$1.36	$2.63	$2.28
American	1.57	1.29	1.35

In the United Kingdom, the following were the number of men engaged in mining (above and below ground) for the years given: In 1883, 491,800; in 1900, 759,000; in 1901, 787,700. In the United States there were 449,181 employed in 1900, but there are no figures available for 1883 or 1901.

It is significant how much greater is the production in tons per man in the United States than in other countries, as shown by the following table:

Country.	1883.	1900.
	Tons.	*Tons.*
United States*	....	548
United Kingdom†	333	296
Germany	270	264
France	189	206
Belgium	171	177

* The earliest figures available for the United States are for 1889, when the production was 421 tons per man.

† In 1901, the production per man in the United Kingdom was only 278 tons.

JAMES BOYLE,
Consul.

LIVERPOOL, *October 17, 1902.*

THROUGH SERVICE FROM PARIS TO PEKIN.

Some days ago, the directors of the Nord, Ouest, and Orleans railway companies of France and representatives of Belgian, Dutch, German, Austrian, and English roads met at Paris, in order to make arrangements for a through-train service from Paris to Pekin. It was shown at this meeting that the trip could be made by way of St. Petersburg and Siberia in eighteen or nineteen days, while the sea route, either by the Suez Canal or the Atlantic and Vancouver, requires from thirty-two to thirty-three days. All that seems necessary at present is an arrangement of time-table connections and the selection of cities in which through tickets may be purchased. It is said that through tickets will be delivered at both Havre and Cherbourg, and trans-Atlantic companies will be able to state before boats leave New York whether or not connection will be made with through trains to the Orient. The same arrangement will be made for the daily service between Southampton and Paris.

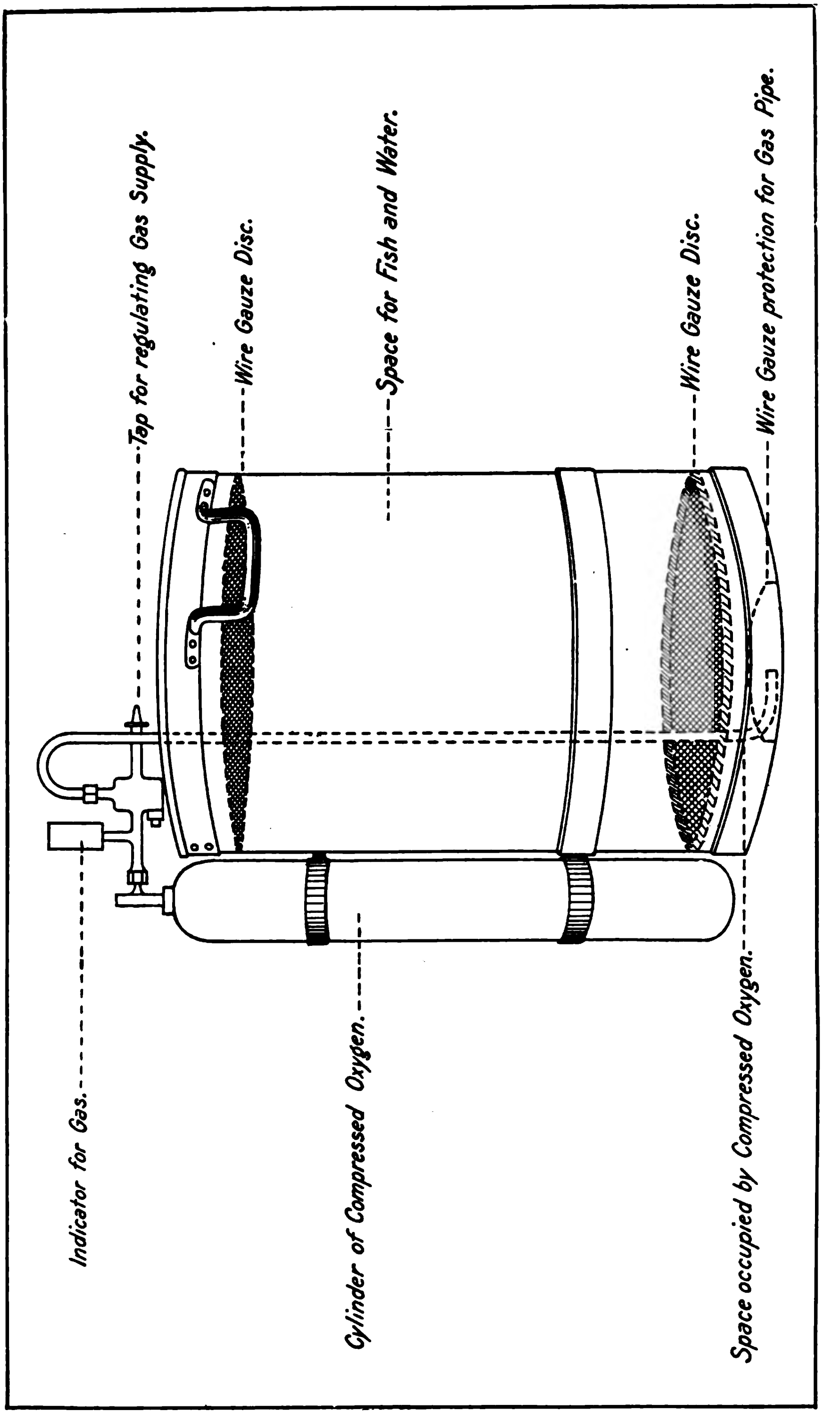
It was also decided at the recent meeting to form a combination with the trans-American railroads and trans-Pacific lines, so that round-trip tickets from New York to Pekin could be sold at the former city, with the privilege of going by the Pacific and returning by the trans-Siberian route, or vice versa. The time required from New York by either route is about the same.

THORNWELL HAYNES,

ROUEN, *October 15, 1902.* *Consul.*

SWISS DEVICE FOR CARRYING LIVE FISH.

I give herewith a diagram of a device patented by Gmür, Maurer & Wiget, of Lucerne, for the transportation of live fish. The cylinder attached is charged with compressed oxygen, and automatically allows the required amount of gas to descend, by means of a tube, under a very fine wire gauze, which is a little above the bottom of the barrel or cask. The pressure of the oxygen keeps the water from entering the space between the screen and the bottom of the barrel, and allows only a small portion of the oxygen to penetrate at a time. The gradual escape into this space is greater than the outlet through the wire gauze, with the result that when the space becomes greatly charged with oxygen gas, and the force of the water above is no longer able to hold it, it rushes into the tank or barrel with such force that the fish are turned over and over. The most delicate


Indicator for Gas.
Tap for regulating Gas Supply.
Wire Gauze Disc.
Cylinder of Compressed Oxygen.
Space for Fish and Water.
Wire Gauze Disc.
Space occupied by Compressed Oxygen.
Wire Gauze protection for Gas Pipe.

fish can be packed in these tanks in great quantities and will keep alive for thirty-six hours with the present device; but it is expected that with a larger cylinder of oxygen, the length of time will be increased. Shell fish and eels could be packed like sardines in a tin.

As the cylinder containing the compressed oxygen gas works automatically, no care is required during the transportation of the casks.

Large quantities of brook trout and other fish are being sent from Switzerland to other parts of Europe by means of this device, and as an illustration of the advantages of being able to transport the fish alive, Messrs. Gmür, Maurer & Wiget inform me that in Vienna, for instance, they receive 8 crowns ($1.60) per kilogram (2.2 pounds) for live brook trout, whereas for the dead ones they only receive 3 crowns (60 cents). The firm has in construction several large tank cars with cylinders attached, to enable them to transport a greater quantity of live fish.

HENRY H. MORGAN,
Consul.

LUCERNE, *October 10, 1902.*

INTERNATIONAL EXPOSITION AT ATHENS.

The International Exposition of Industry, Commerce, Art, and Hygiene,* which was to have been opened in Athens the 15th of October, has been postponed until the 7th of April, 1903, as recently announced through the Foreign Ministry. This postponement has been found necessary in order to allow the Greek Government more time for the organization of the movement. Incidentally, it will allow more time for foreign nations to participate. Our export interests could not have made a creditable showing at the first-named date. Now that six months' additional time is to be given, an intelligent display of American products is made possible. It would be difficult to say along what lines special effort should be made, since the Greek market is open to almost everything in the way of manufactures. Certainly, farming implements, mechancial instruments, and devices of every sort, including typewriters, letter and printing presses (particularly hand and foot power presses), engines of various types, currant-cleaning machinery, lighting apparatus, lamps, dynamos, and electrical appliances, and a long list of similar goods will find favor with the Greek people. It is probable that many of the articles displayed could be disposed of in this market, and such as could not be sold at once could be continued on exhibition at a nominal price by what is to be known as the American Importers' Association, which will undertake, when formed, the display and sale of American goods of all kinds.

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*See ADVANCE SHEETS Nos. 1407 and 1463; CONSULAR REPORTS No. 264.

An American exhibit may induce a like favor for the Louisiana Purchase Exposition.

Direct boats are now running between New York and Piræus, which will insure good transportation rates and quick and safe service.

FRANK W. JACKSON,
Consul.

PATRAS, *October 6, 1902.*

GERMAN EXPORTS TO THE UNITED STATES.

Consul-General Mason, of Berlin, under date of October 10, 1902, transmits the following condensed statement, showing the value of the exports declared for the United States at the several consular offices in Germany during the quarters ended September 30, 1901 and 1902, respectively:

Offices.	Third quarter, 1901.	Third quarter, 1902.	Gain or loss.
Aix la Chapelle	$369,396.62	$1,224,632.66	+ $855,236.04
Annaberg	671,906.04	817,469.98	+ 145,563.94
Bamberg	239,847.00	347,976.54	+ 108,129.54
Barmen	1,101,652.69	1,841,307.26	+ 739,654.57
Berlin	2,222,805.70	2,652,195.58	+ 429,389.88
Bremen	731,478.12	665,705.03	− 66,043.09
Breslau	367,993.46	421,848.23	+ 53,854.77
Brunswick	512,613.42	540,445.70	+ 27,832.28
Chemnitz	1,274,223.44	1,952,408.48	+ 678,185.04
Coburg	1,572,175.50	1,533,101.00	− 39,073.00
Cologne	651,566.19	1,153,757.83	+ 502,191.64
Crefeld	733,106.23	789,815.31	+ 56,709.08
Dresden	442,234.74	322,729.00	− 119,505.00
Düsseldorf	303,448.31	1,150,358.54	+ 846,910.23
Frankfort	1,868,614.66	2,014,513.41	− 145,898.75
Freiburg	236,660.29	222,779.05	− 13,881.24
Glauchau	160,665.65	183,512.15	+ 22,846.50
Hamburg	2,298,765.89	3,307,893.69	+1,009,127.80
Hanover	177,337.25	323,863.89	+ 146,526.64
Kehl	350,067.77	1,002,222.50	+ 652.154.73
Leipzig	1,357,705.30	1,835,473.81	+ 477,768.51
Magdeburg	1,826,120.70	1,431,844.22	− 394,276.48
Mannheim	911,522.44	1,241,479.04	+ 329,956.60
Mainz	492,089.06	588,258.56	+ 96,169.50
Munich	302,794.25	461,008.25	+ 158,214.00
Nuremberg	1,100,952.66	1,185,320.55	+ 84,367.89
Plauen	896,052.93	1,038,331.94	+ 142,279.01
Solingen	421,578.28	461,938.25	+ 40,359.97
Stettin	199,003.78	608,803.35	+ 409,799.57
Stuttgart	261,828.10	315,539.17	+ 53,711.07
Weimar	382,141.61	436,115.17	+ 53,973.56
Zittau	284,418.98	326,878.35	+ 42,459.37
Total	24,722,767.06	32,399,526.49	+7,676,759.43

MANCHESTER EXPORTS TO THE UNITED STATES.

Consul W. F. Grinnell, of Manchester, under date of October 18, 1902, sends the following tables showing the exports of cotton yarn and cotton velvets, cords, and fustians from that district to the United States for the quarter ended September 30, 1902. The corresponding period of 1901 is also exhibited for comparison:

Yarn exports.

Month.	1902.	1901.
	Pounds.	*Pounds.*
July	274,416¾	173,941½
August	210,059½	183,475½
September	265,158¼	174,320¼
Total	749,634½	531,737¼

Exports of cotton velvets, cords, and fustians.

Month.	1902.	1901.
July:	*Yards.*	*Yards.*
Dyed	1,182,724¼	883,679
Undyed	540,662¼	800,448¾
Total	1,723,386½	1,684,127¾
August:		
Dyed	1,106,342	804,003½
Undyed	680,325¼	712,905¾
Total	1,786,667¼	1,516,909¼
September:		
Dyed	908,392¾	810,397¾
Undyed	585,963¾	659,753¾
Total	1,494,356½	1,470,151½
Grand total	5,004,410¼	4,671,188½

POPULAR AMERICAN WARES IN ENGLAND.

Furniture.—Trade in United States furniture is developing in Nottingham. The largest furniture house in this section—with a retail stock filling several stories, and operating an extensive factory—has just imported household goods from the United States, which are likely to find a great sale, if one may judge from the admiration which their style and make elicit from persons who view them. The firm has for years had a large trade in American office furniture. A member of the firm recently remarked to me: "I regret to say, as a patriotic Englishman, that 90 per cent of the office furniture we sell is

American." Roll-top desks are in special favor. Sporadic attempts have been made to make them in England, but, I am told, with such poor success that they have ceased, the Englishman being unable to compete with the American in styles and prices. The rules of the trades unions seriously hamper cheap production in this country. Though wages are nominally lower than in the United States, they are in fact higher, if anything, considering the work actually done, under the British workman's theory that to prolong a job by doing it slowly makes more work. Under the operation of the trades-union rules, the slowest worker sets the pace of his associates, no matter what their number may be.

Corsets.—American corsets rule this market. Dealers tell me that they eclipse the Paris styles, and that the French makers are, per force, now getting their patterns from the United States.

Shoes.—This city supports a thriving American shoe store. The stock is made in the United States expressly for the English trade and the English foot, and the narrower American foot is not easily fitted therefrom. The women's shoes are made from American calfskin or the like; the men's are of English horse leather, sent from this country and made up in the United States. This is to supply the demand for water-tight shoes. Rubbers are but little worn here, though the American shoe store is trying to create a demand for them.

Cooking utensils.—An American roaster, for cooking meats so as to retain their juices and rendering basting unnecessary, is in high favor and has a great sale here; also an American "egg steamer," of which a hardware dealer states he can not get supplies fast enough to satisfy the demand.

These are instances which I have accidentally observed. Doubtless they could be multiplied, but there is still much opportunity for the extension of our trade in this locality. These cases not only show that American goods are used in large quantities here, but encourage efforts to extend our trade along new lines.

FRANK W. MAHIN,
Consul.

NOTTINGHAM, *October 29, 1902.*

NEW MARKETS FOR FRENCH CATTLE.

An article translated from L'Agriculture Nouvelle, Paris, October 18, 1902, reads, in part:

> We have already called attention to the scarcity of meat in England and Germany and the continual increase of its price. Until the present, America has been able to offer meat at a reasonable price, but now that country, too, is undergoing a crisis.

But if there is a scarcity of cattle in England, Germany, and the United States, there is in France, on the contrary, an increasing production not only in quantity, but in quality. We ought, therefore, to take advantage of the occasion offered.

For the exportation of horses, mules, beeves, and pork, we are ready to respond to the needs of other countries.

The exportation of bovines for the first eight months of this and last year is significant. In 1901, there were 7,768 exported; in 1902, 12,209. The excess of fresh beef for the first eight months of 1902 was 17,000 metric quintals (3,747,820 pounds) over the corresponding period of 1901. Almost all of this, dead or alive, goes to Germany, by way of Switzerland.

The article closes by appealing to the Minister of Agriculture to aid the French producers by keeping them informed as to foreign markets, and by entering into negotiations with importing States concerning the entry of French cattle.

THORNWELL HAYNES,
ROUEN, *October 20, 1902.* *Consul.*

MALTESE GOATS.

I have recently received a number of letters from parties in the United States with reference to the Maltese goat. Probably in no country has the raising of fine milch goats been brought to such a degree of perfection as in these islands. Stringent local regulations require cleanliness in care and supervision on the part of veterinary surgeons. For its milk supply, the population of Malta—amounting now to very nearly 200,000 persons—relies almost wholly upon the goat. It has been estimated that there are 12,000 goats in these islands, but I think there are many more. There are two varieties, the short and the long haired. On the latter class, the hair is often 4 and 5 inches in length. In color, Maltese goats are red, white, brown, and black. There are no regular grazing fields for goats, but every morning the herds are driven out along the roads and hillsides, where they pick up whatever they can find in the way of weeds or any other acceptable edible, which, however, seldom comprises grass. This is supplemented by carob beans when the herd is driven back to shelter at night. How the Maltese goat can give the quality and quantity of milk which it does upon this food is a matter of frequent speculation. An average goat produces 4½ pints of milk per day, and sometimes as much as 5 pints. The height is about 2 feet 6 inches, while the weight will often reach nearly 100 pounds. The cost of a good milch goat in Malta varies from $10 to $25. There are a few cows upon the islands, but their milk is thin and watery, on account of feed being so costly.

No special attempt seems to be made by the natives to preserve strains, but, nevertheless, the Maltese goat manages to keep up its reputation for looks and productiveness.

JOHN H. GROUT,
Consul.

VALETTA, *October 23, 1902.*

MALTA TRADE-MARK REGULATIONS.

The following proclamation was published to-day in the Malta Government Gazette:

GOVERNMENT NOTICE.

1. Owners of trade-marks registered in Malta requiring goods imported under such marks to be released to a particular individual or firm, and to prevent the importation of such goods with forged marks, shall send to the collector of customs, duly signed and attested, a declaration according to the attached form.

2. On the detection of any goods bearing the marks indicated and not consigned to the agent appointed as above, a written notice will be sent by the customs department to the latter informing him of the fact.

3. It shall be the duty of the agent, within forty-eight hours of the receipt of the said notice, either to give authority in writing for the delivery of the goods or to make in the office of customs a deposit of 10 per cent on the value of the same, as fixed by the collector of customs from the quantities or value shown in the declaration mentioned in paragraph 1, and subsequently to give within four days a bond in double the value of the goods in his own name and that of his constituent, and, if so required by the collector of custom, with an approved surety.

4. In default of compliance with the provisions of paragraph 3, the goods will be released.

5. The said agent will be required to furnish, from time to time, at the office of customs the address of any premises in Valletta where he may desire the said notice to be served. Such address will be noted in a book to be kept for the purpose, and the notice shall be considered to have been duly served for the purposes of these regulations:

(*a*) If delivered at the address indicated;

(*b*) If refused or returned by the person to whom it is addressed;

(*c*) If the official in charge of the message should not have succeeded in obtaining access to the appointed premises on a working-day.

6. The deposit and bond referred to in paragraph 3 will be returned—

(*a*) On the presentation of a written consent, signed by the person to whom the goods may have been consigned, for the delivery of the goods to the agent appointed by the owners;

(*b*) On a final decision of a competent court of law with respect to the manner in which such goods should be disposed of.

Declaration to be signed by owners of registered marks in accordance with the regulations published by Government notice No. 237, dated October 17, 1902.

PORT OF (name of port).

I (full name and address of declarant), hereby declare that (I or I and my partners, trading as Messrs. ———, or such and such a company of which I am the representative official, or so and so of such and such a place abroad whom I represent in this country) (is or are) the proprietor of (the following name as a trade description, or the following name as a trade description and trade-mark), viz: Registered in Malta on (insert date of registration). See Government Notice No. (insert number), dated (insert date of publication in Gazette). Published in Government Gazette No. (insert number), which (I or we) expect to be applied to goods imported, from time to time, at this port; and that (I or we) have appointed Mr. ———, of (residence), to be (my or our) agent, empowering (him or them) to give authority for the delivery of such goods or in default to make in the office of customs on (my or our) behalf a deposit of 10 per cent on the value of the same, as fixed by the collector of customs for the quantities or value shown by the entry, and subsequently complete within four days a bond in double the value of the goods in (his or their) own name and in (mine or ours), and if so required by the collector of customs, with an approved surety.

I make this solemn declaration conscientiously, believing the same to be true, and by virtue of the statutory declaration act, 1835.

Signed ——— ———.

Declared this ——— day of ———, 190—, at ———, before me, ———, magistrate, or other officer duly empowered to administer oaths, etc.

——— ———

JOHN H. GROUT,
Consul.

VALETTA, *October 18, 1902.*

PHYLLOXERA IN ITALY.

Reports from Italy state that the phylloxera is working ravages among the vineyards of that country, and that there will be an unprecedented demand for American vines with which to graft the old ones. It is reported that 908 provinces in Italy have been invaded by this insect and that not less than 750,000 acres of vine land have been entirely destroyed. The phylloxera invaded Italy in 1879, nine years after its first incursion into France. When discovered in France, it was noticed that it did not injure American vines that had been planted here. Investigation showed that this infinitesimal insect was as lively and energetic among California vineyards as in France, but that it inflicted no injury upon American vines, the opening made by the sting of the insect immediately filling with sap and closing, leaving no wound. For this reason, all vines must be grafted with American grafts in order to be secure from the phylloxera, the California grafts having generally been preferred. France is so well supplied with Americanized vines that she will undoubtedly try to furnish all the grafts that may be demanded by adjacent countries. Americans wishing to open a market for their grafts in Italy, through a well-known French agency, can do so by corresponding with M. Auguste Tezier, of Valence, Drôme, France.

It was asserted at a meeting of the National Agricultural Society of France, held in Paris in September, 1899, that the success in wine growing in France must in the future depend entirely upon grafting. The same is probably true of other wine-growing countries.

JOHN C. COVERT,
Consul.

LYONS, *October 23, 1902.*

ESTIMATES OF SUGAR CROP FOR 1902-3.

The time has again come for estimating the sugar crop that was grown this year in the various beet-sugar-producing countries of Europe. Of course, it is still too soon to get definite data and figures, but these early crop conjectures form a basis for gradually obtaining the final results. Mr. Gieseker, the noted Belgian statistician, was among the first to issue his crop figures for this year, which are not very sanguine and rather below those now current in commercial circles. They are the following:

	Tons.
Germany	1,730,000
Austria	975,000
France	860,000
Russia	1,130,000
Belgium	215,000
Holland	110,000
Other countries	330,000
Total	5,350,000

Mr. Otto Licht, the veteran publisher of sugar statistics at Magdeburg, is probably more nearly correct. His estimates for 1902–3, compared with the actual results of previous years, are given below:

Country.	1902-3.	1901-2.	1900-1901.	1899-1900.	1898-99.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Germany	1,950,000	2,299,408	1,984,186	1,798,631	1,721,718
Austria	1,025,000	1,302,038	1,094,043	1,108,007	1,051,290
France	880,000	1,183,420	1,170,332	977,580	830,132
Russia	1,275,000	1,110,000	918,838	905,737	776,066
Belgium	240,000	350,000	333,119	302,865	244,017
Holland	125,000	203,172	178,081	171,029	149,763
Other countries	355,000	400,000	367,919	263,919	209,115
Total	5,850,000	6,843,038	6,046,518	5,518,048	4,982,101

This would show a shortage of 993,000 tons from last year, but all the estimates are merely approximate. Sugar statisticians are conservative early in the season. True, the weather in many countries has been unusually cool and wet all summer, which has retarded the growth of the sugar beet, and the weight will undoubtedly be below normal. But it is expected that the fairly good weather prevailing during the month of October will much improve the quality, so that it does not seem unreasonable to look for at least 6,000,000 tons of beet sugar for this year. I believe that both Mr. Licht and Mr. Gieseker will have to revise their figures considerably for France, as the estimates of 880,000 and 860,000 tons show a decrease from last year which the reports from that country do not seem to warrant.

In this connection, it may not be amiss to tabulate the estimates of the sugar crop in the leading cane-producing countries, as far as they are obtainable; but these also must be considered to be approximate only, and subject to corrections and changes, until the season closes. These cover about the same period, and, as compared with previous years, are:

Country.	1902-3.	1901-2.	1900-1901.	1899-1900.
	Tons.	*Tons.*	*Tons.*	*Tons.*
Cuba	850,000	683,312	512,061	281,420
Porto Rico	95,000	82,179	55,089	32,751
Trinidad	45,000	44,913	47,942	38,003
Barbados	45,000	45,777	61,074	47,019
Martinique	35,000	31,700	39,550	30,175
Guadeloupe	35,000	40,153	38,529	28,091
Demerara	100,000	118,193	95,188	78,751
Brazil	215,000	280,000	228,000	165,000
Java	725,000	717,820	704,456	697,341
Philippine Islands	55,000	53,331	54,943	66,116
Mauritius	150,000	145,107	174,938	159,102
Reunion	35,000	30,120	42,631	29,377
Jamaica	30,000	30,000	30,000	28,000
Lesser Antilles	80,000	95,000	85,000	80,000
United States	425,000	400,000	350,000	267,734
Peru	125,000	135,000	120,000	120,000
Egypt	85,000	90,000	85,000	95,000
Hawaii	340,000	340,000	320,000	280,000
Total	3,470,000	3,362,605	3,044,401	2,476,057

Given these figures of the world's crop of sugar for 1902-3, this, then, would seem to be approximately the complete statistical situation, as compared with former years:

Description.	1902-3.	1901-2.	1900-1901.	1899 1900.	1898-99.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Old stocks, September 1, 1902	1,800,000	964,042	609,848	928,240	1,044,312
Beet-sugar crop, 1902-3	5,850,000	6,843,038	6,046,518	5,518,048	4,982,001
Cane-sugar crop, 1902-3	3,470,000	3,362,605	3,044,401	2,476,416	2,847,057
Total	11,120,000	11,169,685	9,700,767	8,922,704	8,873,370

The world's consumption of sugar during the past four years has been—

	Tons.
1898–99	7,945,130
1899–1900	8,312,856
1900–1901	8,736,725
1901–2	9,369,685

From the above, it will be seen that even with more than an average increase of consumption, there will be above 1,000,000 tons of sugar left at the end of the season, or by August 31, 1903; which, however, will be considerably less than the present excessive supply. At any rate, there is plenty of sugar for next year.

HENRY W. DIEDERICH,
BREMEN, *October 18, 1902* *Consul.*

NATIONAL CONSUMPTION OF SUGAR.

Figures derived from official sources show that the largest national consumption of sugar is in the United Kingdom, where it is 91.6 pounds per capita annually. The United States comes next, with a consumption of 68.4 pounds per capita; and then Switzerland, Norway, Denmark, and Sweden, each far exceeding the consumption of either France or Germany. The nations with the smallest per capita consumption are: Spain, 10.6 pounds; Turkey, 8 pounds; Roumania, 7.8 pounds; Greece, 7.2 pounds; and Italy, 6.1 pounds.

Relatively, sugar is very cheap in the United Kingdom. The retail price here is 4 to 6 cents a pound, whereas in sugar-producing Austria, for instance, where only the local product is used, the price is 6 to 8 cents a pound, presumably on account of heavy special taxes.

It is estimated that the sugar production of the world has increased eightfold in the past sixty years. In 1840, the figures were 1,150,000 tons, while now they are about 9,000,000 tons annually. The development of the beet-sugar industry accounts for much of this increase. That industry has grown from a product of 50,000 tons in 1840 to 6,000,000 tons. During the same period, the cane-sugar product has increased from 1,100,000 tons to 3,000,000 tons. In 1840, beets supplied 4.35 per cent of the world's total sugar product; in 1900, 67.71 per cent.

FRANK W. MAHIN,
NOTTINGHAM, *October 16, 1902.* *Consul.*

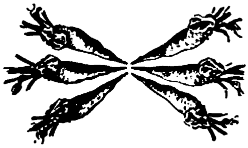
CULTIVATION OF BEET SEED FROM IMPORTED MOTHER SEED.

It is impossible for men interested in the beet-sugar industry in the United States to attach too much importance to every phase of the seed question.

As is well known, most of the seed is imported, mainly from Germany and France, where specialists have for generations, through scientific methods of breeding and selection, succeeded in growing seed for beets with high sugar contents. But imported beet seed is expensive, and therefore efforts are being made in diverse sugar-producing countries to grow the supplies needed at home. The success thus far has been rather indifferent, particularly in the United States, as I am informed. Even if the grower has all the scientific experience necessary and is fully equipped as to details, he still has many more difficulties (those originating from our soil and climate) to contend with than the foreign seed grower. Thus it is a well-known fact that many kinds of high-grade seed will degenerate more rapidly in our country than elsewhere; but of late years considerable progress has been made in this direction, and there is every reason to expect that ere long American home-grown beet seed will reach the standard that has been attained by the growers in Germany and France.

I desire to call attention to a method which has been employed by Russian growers of seed during recent seasons, and has proved very successful. They import German mother seed, from which they raise, in the course of two years, a crop of first-class beet seed with all the qualities of the original. In this way, it is said, they get the very best of seed at half the cost. Some of our beet-sugar people may consider it worth while to see if good marketable beet seed can not also be grown in our own country from imported mother seed.

The process used in Russia is very simple. The mother seed is sown with a machine drill in rows that are 10 to 12 inches apart, about 20 to 30 pounds to the acre. After the seed has sprouted and sprung up, the hoe must be kept busy, to prevent the weeds from growing up with the young plants. However, the plants are not thinned, as is done when crop beets are raised for sugar, but are allowed to grow until fall, just as they were sown. Before frost sets in the small beets thus grown from the mother seed are dug out, together with their tops, and those which have some defect about the roots or otherwise are picked out and thrown aside. The smooth and perfect ones are then put into pits, together with their tops, not more than three beets deep. The layers are put together with their tops outward and the roots almost touching each other, as in the accompanying illustration, and the entire row is gradually covered with earth, beginning with a little at the start and adding thereto with increasing cold weather, until the covering becomes about a yard thick (in Russia), so that they may not suffer from rain, frost, or insects. The soil in which the mother seed is sown should not be previously fertilized with fresh stable manure or with any commercial fertilizer of a strong nitrogenous character, but only with nitrate of potash or phosphoric acid.



In the following spring the small seed beets are taken out of the pits, again assorted, and planted 2 feet apart in soil which has been thoroughly fertilized with stable manure or nitrate of potash or phosphoric acid, and is in a high state of cultivation. When the seed beets are well started, they must be continually kept free from weeds. They are allowed to grow till the seed turns brown in color, when the stalks are cut and put into bundles. These remain out in the field until the stalks become dry, when they are brought to the barn and thrashed. As already stated, about 20 to 30 pounds of mother seed are sufficient for 1 acre. From this can be grown all the material needed to plant 10 acres of seed beets in the following spring.

As to results, in Germany, on an average 1,700 to 1,800 pounds of beet seed are harvested from 1 acre; therefore, 10 acres will average 17,000 to 18,000 pounds. In other words, the 20 to 30 pounds of mother seed sown the first year will produce at the end of the second 17,000 to 18,000 pounds, equal to 160 sacks of beet seed, with which to raise crop beets for the sugar factory.

As much depends upon the proper condition of the soil, it is well to remark once more that the ground should be in good condition, *i. e.*, thoroughly plowed and cultivated and kept free from weeds; but it must not be at all nitrogenous for the cultivation of the mother seed during the first year. On the other hand, the soil in which the seed beets are planted in the second year should be in the very best state of fertility, from the application of stable manure and commercial fertilizers. By reducing as much as possible the nitrogenous matter in the first year, the growth of the small seed beets will be retarded, but they will attain a very high percentage of sugar; and by pushing them the second year with strenuous fertilizers, they will yield a heavy crop of fully developed seed. The best climate is that in which dry weather predominates in the fall. After the stalks have been cut, they should be protected as much as possible from the wet, otherwise the seed lose their virtue of germinating. All seed that is well matured and has become thoroughly dry and been brought to shelter without being again exposed to damp weather will germinate quickly. Of course, there will be details in this, as in every other business, which will have to be found out by experience, but the general principles of this method of producing home-grown beet seed will be readily adapted to the variations of our climate and soil.

The contracts for German mother seed sold to Russia are made on the following basis: The seed is furnished on condition that the seller will ultimately get $1.70 for every 100 pounds of beet seed harvested. To protect himself, he at the same time demands that if the crop should be a failure, he gets $160 for each sack of 110 pounds of mother seed, of which $119 per sack must be paid in advance, upon delivery of the seed. At first, this seems to be an extravagantly high price, but when it is borne in mind that one sack of mother seed will yield ordinarily, at the end of two years, 1,600 sacks of beet seed it will be admitted that the cost is none too high, and that the experiment is worth trying.

HENRY W. DIEDERICH,
BREMEN, *October 10, 1902.* *Consul.*

SUGAR PRODUCTION OF CUBA.

Under date of October 24, 1902, Minister Squiers, of Habana, transmits the following statement, showing the quantity of sugar exported and on hand September 30, 1902, as compared with the same date in 1901:

Port.	Exported.		On hand.	
	1901.	1902.	1901.	1902.
	*Bags.**	*Bags.**	*Bags.**	*Bags.**
Habana	327,796	494,776	289,717	418,119
Matanzas	603,867	825,676	90,209	118,399
Cardenas	705,584	880,967	101,772	204,803
Cienfuegos	805,229	862,681	26,913	42,219
Sagua	279,177	397,483	13,436	36,046
Caibarien	271,619	291,015	35,400	75,055
Guantanamo	250,200	300,435	....	3,276
Cuba	39,433	67,769	6,032	9,103
Manzanillo	127,496	145,530	....	....
Nuevitas	67,030	139,450	....	....
Gibara	103,300	344,661	....	6,283
Zaza	8,146	22,500	8,500	7,058
Trinidad	42,883	66,654	....	....
Total	3,361,940	4,841,597	571,379	920,811

* Bags of 320 pounds.

Description.	1901.	1902.
	Tons.	*Tons.*
Exported	518,848	691,657
On hand	81,626	131,544
Total	600,474	823,201
Domestic consumption	29,160	31,750
Total	629,634	854,951
Old crop on hand January 1	523	19,873
Received at ports up to September 30	629,111	835,078

REORGANIZATION OF CUBAN RURAL GUARD.

The Department has received from Minister Squiers, of Habana, under date of October 24, 1902, translation of the law for the reorganization of the rural guard. Mr. Squiers states that the new organization contemplates a strength of 3,800 officers and men, as compared with 3,426 in the former proposed scheme of reorganization and 1,500 at present.

The provisions of the law are, in part:

The rural guard is a body with a military organization, whose functions shall be civil and which has for its object the preservation of public order. The corps shall consist of 3,800 individuals, organized as follows: A general directorate and 3 regiments; each regiment shall consist of 8 squadrons of cavalry and 2 companies of infantry. The general directorate shall be composed of 1 brigadier (chief), 1 lieutenant colonel (quartermaster), 1 major (chief of the office), 1 captain (judge-advocate), 1 captain (aid-de-camp), 3 sublieutenants for the office (Executive). The officers and staff of each regiment shall be 1 colonel, 1 lieutenant colonel, 1 major (quartermaster), 1 captain (chief of the office), 1 captain (physician), 1 lieutenant (paymaster), 1 lieutenant (veterinary), 1 sublieutenant (adjutant), 2 sergeants (copyists), 1 corporal (orderly), 1 corporal (armorer). Each cavalry squadron shall be composed of 80 guardsmen, with 1 captain, 2 lieutenants, 1 sublieutenant, 4 sergeants, 8 corporals, 2 trumpeters, 1 farrier. Each company of infantry shall be composed of 80 guardsmen, 1 captain, 2 lieutenants, 1 sublieutenant (quartermaster), 4 sergeants, 8 corporals, 2 cornets. The chiefs and officers of the rural guard shall be mounted officers and shall acquire on their own account their horses, uniforms, and equipment. Two dollars a month shall be deducted from the salary of a non-commissioned officer or guardsman until the cost of his horse is covered. Enlistments shall be for four years. The following qualifications shall be required: (1) To be a Cuban; (2) to know how to read and write the Spanish language; (3) to have good habits and a good record; (4) to be over 21 years of age and under 45; (5) minimum weight, 120 pounds, maximum, 170 pounds; (6) height, at least 5 feet 4 inches; (7) not to have been convicted for any criminal cause, nor to have been discharged dishonorably from any civil or military office. The positions of officers shall be filled by examination, the appointment being made by the President of the Republic, in accordance with the classification obtained. The appointments of chiefs are made by the President. Quartermasters and paymasters shall give sufficient bonds to the State; the latter shall be elected by the officers of the respective regiments.

FOREIGN TRADE OF CUBA.

Under date of October 31, 1902, Minister Squiers, of Habana, transmits the official report of the foreign commerce of Cuba for May and June, 1902, together with a statement of the trade with the United States in June, 1902, as compared with other countries. Mr. Squiers notes that the sugar trade for the first six months of 1902, as compared with a like period of 1901, shows a falling off of 143,000 tons, but there is an increase of 318,000 tons held in storage, probably for better prices. From the statement it will be seen that the United States had 44 per cent of the import trade and 74 per cent of Cuba's export trade; that practically all Cuba's sugar and fruits found a market in the United States in June last, while of the tobacco exported in that month over 50 per cent went to the United States. In the import trade, the United States almost entirely supplied the wheat flour, corn, crude oil, coal, and meats, with the exception of jerked beef. Spain and Canada supplied large quantities of potatoes, onions, hams, and butter, says Mr. Squiers, which should come from the United States or be supplied by the home market. In live stock, the trade of the United States ought to be largely increased. The tariff provisions are favorable, and cattle men prefer American stock. The iron and steel trade with the United States is not what it might be, and there seem to be great opportunities in lumber and soap.

The following table shows the total exports and imports, by semesters (six months), for the years 1899, 1900, 1901, and 1902:

Year.	Imports.	Exports.	Increase in imports.	Increase in exports.
1899.				
First six months	*$35,911,800	*$31,600,600	*$4,311,200	
Second six months	39,391,700	19,332,100	20,059,600	
Total	75,303,500	50,932,700	24,370,800	
1900.				
First six months	37,478,200	30,066,600	7,411,600	
Second six months	32,601,100	21,385,800	11,215,300	
Total	70,079,300	51,452,400	18,626,900	
1901.				
First six months	33,663,800	42,942,500		*$9,278,700
Second six months	34,089,300	23,559,600	10,529,700	
Total	67,753,100	66,502,100	1,251,000	
1902.				
First six months	31,977,100	30,687,000	1,290,100	
Grand total	245,113,000	199,574,200	45,538,800	

* The values are given in United States currency.

The first six months of 1902, compared with the same period of 1901, show a decrease in imports of 5 per cent and in exports of 28 per cent. Compared with the same period of 1900, a decrease is shown in imports of 15 per cent and an increase in exports of 2 per cent.

The commerce with the United States, compared with that of other countries for the first six months of 1899, 1900, 1901, and 1902, was as follows:

IMPORTS.

Country.	1899.		1900.		1901.		1902.	
		Pr.ct.		*Pr.ct.*		*Pr.ct.*		*Pr.ct.*
United States	$19,929,900	56	$17,503,200	47	$13,867,300	41	$14,035,500	44
Germany	707,600	2	1,313,200	3	1,733,500	5	1,694,600	5
Spain	5,173,300	14	5,437,400	14	5,564,100	17	5,014,100	16
France	1,303,800	4	1,776,800	5	1,432,000	4	1,542,500	5
England	3,816,000	11	5,939,200	16	4,756,800	14	4,777,800	15

EXPORTS.

Country.	1899.		1900.		1901.		1902.	
United States	22,900,000	73	22,804,800	85	35,163,700	82	22,787,000	74
Germany	836,900	3	941,900	3	2,118,600	5	1,817,600	6
Spain	2,749,200	8	575,800	2	142,100	....	753,000	2
France	896,300	3	2,111,200	7	974,700	2	949,700	3
England	2,994,500	9	2,466,400	8	2,919,400	7	2,971,700	10

In the first six months of 1902, the customs receipts are greater than for the corresponding period of 1899, but are 4 per cent less than in the first six months of 1900 and 1901. The bad economic situation explains the falling off of the receipts.

Statement of trade, by countries, for the month of June, 1902.

EXPORTS.

Article.	United States.	Germany.	Spain.	France.	England.
Leaf tobacco	$502,302	$19,702	$41,826	....	....
Cigars	229,525	57,134	57,302	$102,762	$409,779
Cigarettes	79	337	136	11	716
Picadura	1,106	30	24	398	254
Crude sugar	3,195,736	....	456	....	....
Rum	6,762	....	63	280	8,941
Bananas	146,610	....	....	....	....
Pineapples	112,610	2	....	....	....
Cocoanuts	6,598	....	....	....	....
Total	4,201,328	77,205	99,807	103,451	419,690

IMPORTS.

Article.	United States.	Germany.	Spain.	France.	England.
Wheat flour	$152,075	....	$19	....	....
Corn	113,837	....	....	....	....
Potatoes *	3,683	....	2,920	....	$6,400
Onions	25,265	....	....	....	....
Hams	42,996	$135	3,319	....	....
Butter	2,590	822	4,257	$104	....

* The imports from England under this head include those from Canada.

IMPORTS—Continued.

Article.	United States.	Germany.	Spain.	France.	England.
Lard	$235,207	......	$1,065	......	$3,864
Condensed milk	32,391	$4	......	......	......
Oil:					
Crude	24,425	......	......	......	......
Refined	9,927	35	......	......	2
Coal	156,825	......	......	......	......
Beef:					
Fresh	9,222	......	......	......	......
Canned	538	......	......	......	......
Salt	132	......	......	......	......
Pork:					
Salt	56,792	......	......	......	......
Fresh	2,508	......	......	......	......
Bacon	273	......	......	......	......
Mutton and beef products	9,312	7	954	$211	......
Iron and steel:					
Manufactured	2,780	992	351	302	565
Iron pipes, etc	4,727	......	......	......	2,516
Miscellaneous	55,193	8,706	283	2,256	27,359
Lumber, manufactured	24,493	1,398	1,621	964	1,261
Furniture	1,316	25	342	600	......
Barrels	10,492	543	5,676	2,028	3,140
Pine lumber	98,186	......	......	......	......
Miscellaneous lumber					
Soap:	22,020	......	......	......	......
Common	1,347	26	28,619	813	425
Other	1,095	38	1	693	98
Perfumery	1,856	1,834	72	12,947	210
Total	1,111,503	14,565	49,499	20,938	45,840

Note.—Cuba imported jerked and dressed beef from Argentina to the amount of $83,845, and from Uruguay $122,991; Italy sent mutton and beef products to the amount of $528.

The imports of live stock during the month of June, 1902, were:

Description.	United States.	Mexico.	Porto Rico.	Colombia.	British West Indies.
Bulls	$15,676	$43,225	$4,033	$4,352	......
Cows	40,300	29,522	3,402	16,404	......
Yearlings	47,972	234,267	508	22,383	......
Calves	25,915	13,906	6,869	2,325	......
Hogs	2,900	......	......	......	......
Horses	8,905	21,825	702	......	$1,147
Mules	4,850	7,962	90	......	1,065
Total	146,518	350,707	15,604	45,464	2,212

UNITED STATES CAPITAL IN CANADA.

The people of the United States are aiding largely in the development of Canada. Within the past year, millions of dollars have been invested here in agricultural and timber lands and mining and manufacturing industries.

Mr. Louis B. Jennings, of No. 62 Wall street, New York, has recently organized the Canadian Steel and Coal Company, capitalized at $6,000,000. His properties consist of 4,000 acres of iron ore—said to be the most remarkable deposit known—and 3,000 acres of coal lands. He has already made contracts to deliver thousands of tons of iron ore in the United States and Great Britain.

Claus A. Spreckles and W. W. Cook, of New York, have recently made application for the incorporation of the Federal Sugar Refining Company, Limited. This organization is to be affiliated with the United States company of the same name. The capital of the Canadian company is $6,000,000. Mr. Spreckles claims to have made a discovery in methods of refining which reduces the cost of producing refined sugar $5 per ton. The refinery will be located in Montreal.

Theodore P. Burgess, president and general manager of the Burgess Sulphite Pulp Company, of Berlin Falls, N. H., a few weeks ago closed a deal with the Quebec department of lands, forests, and fisheries for the purchase of 600 square miles of timber on the Upper St. Maurice River. The sale is an exceptionally good one for the Province of Quebec. Not only will the government be richer by several hundreds of thousands of dollars, but, as the purchasers intend to start lumbering immediately, it will offer work to a large number of men. The Burgess company intends to bring the pulp wood down the St. Maurice to the St. Lawrence River, opposite Three Rivers, where it has secured 2 miles of deep-water beach, and will ship to its mills in Berlin Falls over the Grand Trunk Railway.

Another large American industry has decided to evade the duty of 25 per cent on agricultural machinery and establish itself in Toronto. It will produce thrashing machines and traction engines. The new firm will be known as the American Abell Engine Thrasher Company; it has taken over the Toronto Abell Works. Behind it are two of the largest thrashing-machine manufacturers in the world—the Advance Thrasher Company, of Battle Creek, Mich., and the Minnesota Engine and Thrasher Company, of West Minneapolis—and several wealthy men of the northwestern States. Their agents have already placed orders for 1,000,000 feet of hard-wood lumber. The new company is to have $1,000,000 of capital stock; it will employ about 400 men, and next fall will make extensive additions to the present works. The output of the company per annum will be $1,500,000. This same company will erect a large warehouse and machine shop at Winnipeg, from which point much of its business will be done. The managing director of the company says:

> In a comparatively few years, western Canada will be an immense purchaser of agricultural machinery of all kinds. It will not be long before western Canada will buy more agricultural machinery than the western part of the United States. There is more arable land in Canada, west of a line drawn north and south through Winnipeg, than there is west of the Mississippi River, in the United States. This immense section will be developed rapidly, and it will grow good crops.

In establishing a manufacturing business on the Canadian side of the line, we feel perfectly independent of tariff laws that may be made in either country. We can do business irrespective of how the lawmakers of one country treat the products of the other.

The Westinghouse Company, of Philadelphia; the Ingersoll Sargent Drill Company, of New York; the Port Huron Thrashing Machine Company, of Port Huron, Mich.; and the Deering Harvester Company, of Chicago, are engaged in the location of great plants in the Province of Ontario.

The Oil Exploration Company, of Canada, a new concern, has been incorporated with an authorized capital of $200,000, with the head office at Walkerville, Ontario.

The Canadian Coral Marble Company has been incorporated, with the head office at Toronto, with an authorized capital of $500,000, of which, it is said, the largest amount is American. The company is empowered to manufacture a composition known as coral marble, which is used for flooring, etc.

It is stated that as a result of the investigation made by American capitalists in St. John's, Quebec, an extensive plant for the manufacture of porcelain-enameled baths will be established in this Province within a short time. The plant, when erected, will be large enough to supply the entire demand in the Dominion in this line of goods, which, up to the present, have been almost exclusively imported. The increasing importance of the trade in this country, and the demand for sanitary ware, which has rapidly grown, are given as reasons for the establishment of the plant.

The Locomotive and Machine Company, of Montreal, has just been incorporated by letters patent to carry on the business of a foundry, machine shop, factory, engine, structural metal, and boat and bridge building establishment. The capital stock is $1,000,000, largely American.

Letters patent have been issued incorporating Robert Stuart, of Chicago; Walter Donald Douglas, of Cedar Rapids, Iowa; and several Canadians as "The Northern Cereal Company." The capital stock is $2,000,000, the majority of which is American.

The meat-packing firm of Swift & Co., of Chicago, recently purchased the property of the Fowler Canadian Company, at Hamilton. A new pork-packing plant is to be erected, which will be larger than any like establishment in the Dominion.

The Haines Piano Company, of Rochester, N. Y., has purchased the old Hess factory, at Toronto Junction. It is enlarging the plant and will employ 200 hands in the manufacture of pianos.

A charter has been granted the Clover Leaf Mining Company, with a capital of $1,000,000. The head offices are at Toronto. A majority of the capital is American.

The Buffalo Forge Company, a $1,000,000 corporation, which manufactures engines, ventilating wheels, and heating and drying apparatus, has declared its purpose of establishing a branch factory in Canada.

A New York company has in operation in Montreal a large plant which makes lumber fireproof. Its output is readily disposed of.

The American Bridge Company, of New York, has been licensed to carry on business in Ontario at a capital not to exceed $100,000.

The Globe-Wernicke Company, of Cincinnati, Ohio, manufacturers of school supplies and special lines of furniture, is to establish a plant at Stratford, Ontario. As a bonus, the managers receive exemption from taxation for ten years.

A party of Americans is now in Ottawa preparing to erect a factory for the manufacture of spades, shovels, and garden tools. The capital stock is $100,000. The promoters take one-half of the stock and Canadians the other half. The company will employ 100 men.

John Critchley, representing the American Actinolite and Asbestites Company, of New York, who is visiting Montreal, says that his company has commenced operations in Hastings, Ontario, by working some actinolite properties, and has already shipped several carloads. Mr. Critchley intends to establish works in Canada to refine the actinolite, which is used in the manufacture of heavy paints.

The Stohl Wagon and Farm Implement Company, of Harrisburg, Pa., will be removed to Toronto within the next month. The company will employ at first 40 skilled mechanics and as many more laborers of minor importance. The president says that they have been induced to remove to Canada by the growing demand for their products—particularly the 4-inch-tire wagon—in the Canadian Northwest.

Letters patent have been issued for the Northern Aluminum Company, with a capital of $500,000, organized for the manufacture of aluminum and other ores. The company has erected a building at Shawinigan Falls, and is already at work. The capital is largely American.

The Montreal Novelty Company has been established here by New York parties.

Letters patent of the Province have been issued incorporating Frederick William Parsons, of Tarrytown, N. Y., mechanical engineer; Henry Daniel Lawrence, of Sherbrooke, advocate; Ernest Webber Gilman, of Sherbrooke, mechanical engineer; William Rupert Elliott, of Sherbrooke, clerk; Hon. Francis Edward Gilman, of Montreal; Jasper Raymond Rand, of New York, manufacturer; and Fred Alfred Brainerd, of New York, manufacturer, to purchase, manufacture, and sell tools, appliances, and machinery, pneumatic and otherwise, and other articles of similar and cognate character, and motive devices driven by any kind of power for actuating the same; to represent Canadian or foreign manufacturers of and dealers in such articles; to acquire patents, real estate, and water power necessary for the purposes of the said company, under the name of "The Imperial Pneumatic Tool Company," with a capital stock of $25,000. The capital is nearly all American.

The immense industries of the Clergue Syndicate, at Sault Ste. Marie—iron and steel plants, pulp mills, coke ovens, and nickel mines—have all been established by American capital.

Premier Peters, of Prince Edward Island, has announced an important agreement with a firm of Canadian and American capitalists, which insures for the island the most complete and modern outfit of cold-storage appliances that can be obtained. The capital of the company is $1,000,000. It pledges itself to establish three cold-storage warehouses, one in each county, with a capacity sufficient to handle all the animal and agricultural products of the island, and to do a certain amount of additional business for Nova Scotia and Newfoundland. It will further establish at Charlottetown a canning factory, capable of handling all the fruit and vegetables of Prince Edward Island; and at the same place, an immense pork-packing and meat-canning establishment, for the whole of the maritime Provinces and Newfoundland. It is bound to maintain and operate all the above for thirty years, to expend $250,000 in the first year, and to pay annually $40,000 in wages in Prince Edward Island alone. In return, the local government guarantees an issue of mortgage bonds, for which the company is to provide a sinking fund, and grants exemption from taxation, to have effect at once. Monopoly is to be permitted.

An important tobacco firm in Pittsburg, Pa., has written the Dominion statistician for details respecting the cultivation of tobacco in Canada, with a view, if circumstances are favorable, of establishing a large factory for the manufacture of cheroots and "stogies." The firm wishes particularly to ascertain the quantity of tobacco grown here, and whether the quality of the native product will permit of its being used for the desired purposes, as the high duties would doubtless prevent the importation of foreign leaf. A reply has been sent, stating that the consumption per head of the population was in 1899 a little over $2\frac{1}{6}$ pounds; in 1900, $2\frac{3}{10}$ pounds; and in 1901, $4\frac{5}{6}$ pounds. There is little limit to the quantity which can be grown. In 1871, the production of tobacco amounted to 1,500,000 pounds; in 1881, it reached 2,500,000 pounds; and in 1891, it had grown to 4,300,000 pounds. Tobacco is grown in Ontario and Quebec, and it is reported that the climate of British Columbia is also suited to its production. The opinions of experts as to the character of the native tobacco are also submitted.

The International Harvester Company is erecting a plant at Hamilton, and will employ 1,500 hands.

The Altman-Taylor Implement Company, of Peoria, Ill., will soon establish a branch in Canada.

The Canadian Woolen Mills Company, at St. Hyacinthe, has passed into the hands of American capitalists, who will hereafter operate the industry.

The Laurentide Pulp and Paper Company has an immense plant, and has built up around it the thriving town of Grand Mere. The company was organized five years ago and has been prosperous from the beginning.

The latest announcement in connection with the incoming of foreign industries is the news that the International Paper Company, a gigantic concern, is about to utilize the areas it has secured in the Three Rivers district and establish pulp mills in that portion of the country. It has not yet been decided how soon the company will begin actual operations, but it will be within a year or two at the outside. The company already has a sawmill and cutting-up boat at Three Rivers, with a capacity of 3,000 logs daily, and a cutting-up plant which can handle 2,500 logs per day. At Bastican, it also has a big preparing plant.

The manager was in Canada a short time ago and secured 197 square miles of timber on the St. Maurice River, near Three Rivers. This brings the company's holdings in Canada up to the immense area of 1,900,000 acres of spruce lands. In the United States, the company owns in fee simple 900,000 acres and has contracts for 225,000 more, so that all told it is said to control about 3,025,000 acres of spruce.

According to the manager, the lands owned by the company on the Bastican and St. Maurice rivers, in the Three Rivers district, are easily accessible, and the facilities for boat and train service are unexcelled.

Many American syndicates have been looking over the ground in Canada during the last few months. A significant fact to those connected with the paper industry is that the largest of these syndicates, the Gres Falls Company, is controlled by men prominent in the International Paper Company. The Gres Falls Company was organized in April last and owns water power and extensive spruce limits at Three Rivers. The company is capitalized at $500,000, and it is said to be the intention to develop the industry at once.

The investments made by Americans in agricultural, grazing, and timber lands amount to many millions of dollars. Only recently, a Columbus, Ohio, syndicate purchased 600,000 acres in the Northwest Territory. A Minneapolis and St. Paul syndicate has purchased a much larger area, and is promoting emigration from the Western States to the Canadian Northwest, to which over 50,000 settlers have gone during the present year.

Canada is also showing wonderful enterprise in self-development. People are throwing off their conservatism. When industrial openings are presented to them they no longer take a year for consideration, but investigate promptly, and, when satisfied, invest liberally.

JOHN L. BITTINGER,
MONTREAL, *October 22, 1902.* *Consul-General.*

STATIONERY GOODS IN CANADA.

A Canadian dealer draws his supplies from many sources. Proximity to the United States is greatly in favor of the stationery manufacturers of our country, many of whom have taken advantage of this market to the fullest extent and push their goods ahead of those of all other countries; but the stationery imports from Great Britain and other Old World countries are considerable and are growing rapidly. Imported goods are generally chosen in Canada in preference to those of home manufacture.

Writing paper.—Much of the paper for manufacturing fine writing stationery is of United States origin. Our market commends itself to the Canadian buyer, for the reason that the goods can be shipped in any desired quantity and in quick time; and in novelties, the United States is far ahead of any other country. Travelers from our mills visit this market nearly every month and thus keep in close touch with the jobbers, while a yearly call is all that British representatives pay. Of course, much paper of ordinary class in bond, parchment, and vellum is made in Canada. Fancy tints also are made to some extent, but most of these come from the United States.

Papeteries.—In papeteries, the English houses stick mainly to staple sizes. The quality of the British papeteries is said to be finer than the American, but they are not put up so tastefully. The British goods are cheaper than the American. A few novelties in papeteries come from France. These are in flaring colors, and are not in great demand. Nearly all black-bordered note paper comes from Great Britain.

Blotting paper.—In blotting and typewriting papers the United States is in the lead. The thick blotting paper, which formerly came from England and Scotland, now comes from Virginia. In thin blotting paper, the trade is still in favor of the old country. Blotting paper, with one side glazed for advertising purposes, comes wholly from the United States.

Artists' paper.—Great Britain is far ahead of other countries in the Canadian market in drawing, water-color, and all artists' papers. The American mills are, however, commencing to make these, and are threatening competition with British goods.

Tissues.—The best imported tissue papers come from England. The cheaper goods are from Belgium, and a few from the United States. Crape papers come from American and English makers.

Inks.—Imported ink comes from England and the United States, and a little from France. The English inks are the best known and have probably an advantage on the market. The preferential tariff places them on an equality, as far as price goes, with the United States goods. Most of the French inks go to Quebec. Ink powders are growing in popularity, chiefly because importers do not care to pay duty on so much water when the ink is shipped in liquid form. These come from Great Britain and the United States.

Mucilage.—Mucilage is imported from England and the United States. The white paste is nearly all American.

Pens.—Steel pens come to Canada mostly from Birmingham. Some large United States manufacturers sell a number to Canada, and the pens made especially for the vertical writing taught in the schools are American.

Sealing wax.—The best sealing wax comes from England. Some is brought from the United States, but it is of a cheap variety and not a great deal is used here.

Rubbers.—Imported rubber bands are all from the United States. A cheap quality was formerly made in Canada, and for a long time those of home manufacture have had this reputation. Those now made here, however, are quite equal to any imported goods.

Pencils.—The best lead pencils are, of course, from Germany. All good drawing pencils come from that country, which imports the pine wood from the United States, makes the pencils, and then is able to lay them down in Canadian markets in better quality and at a lower figure than home-made goods. The United States pencil makers are mostly interested in rubber-tipped and fancy-designed varieties.

Erasers.—The United States makes the best rubber erasers; but in this line Canadian manufacturers are offering keen competition.

Fancy goods.—Fancy ink bottles, paper weights, and other goods of the kind come from Austria and France. Many novelties in the stationer's trade, such as fancy trays, match safes, etc., are of American make; but Austria, France, and Germany have the bulk of the novelty trade.

Globes, etc.—Map globes are made in the United States. Blackboard brushes, slates, and numeral frames are other school accessories in which American firms do nearly all the trade in Canada.

Silver and gold pencils and other stationers' jewelry are mostly from England, though the United States is rapidly coming to the front.

Lanterns, etc.—What we call Chinese lanterns are made in Germany. The Japanese lanterns, however, are really from Japan. Wicker waste-paper baskets, slate pencils, artists' brushes, damping brushes, and the cheaper seals and stamps are of German make.

Bags.—In school bags, the canvas ones are from England and Germany. All the leather bags are of Canadian make. Other countries have not been able to compete in this line.

Instruments.—Mathematical instruments of the best kind for school and professional use are made in France. Compasses are brought from England and the United States, also, but they are said to be not as good as the French makes.

Cards.—All the playing cards imported are of the best class. The duty of 6 cents per pack keeps out the cheap goods. Most of the cards come from the United States. High-class Christmas cards are sent from England; but much of the work on them is done in Germany. The best visiting cards are British.

Games.—Chessmen, checkers, dominoes, cribbage boards, whist markers, etc., are brought from Germany. Some American checkers and dominoes are beginning to take the place of the German goods; but, on the whole, Germany is the origin of the great bulk of these goods.

Miscellaneous.—Germany, England, France, and Italy supply Canada with rubber balls. The best come from England, and the fancy balls mostly from Germany.

Most of the school crayons and chalk come from the United States. Oil crayons are being used more than chalk now, and it is likely they will soon displace it altogether.

Files, bill stickers, stamping pads, and wire watse-paper and desk baskets are American. Paper fasteners come from England. The porcelain sponge cups are made in Great Britain, but the glass ones are made in both that country and the United States.

Ebony and ebonite rulers are mostly from Great Britain; the other rulers from the United States.

Opera glasses and magnifying glasses of the best kind come from France, though some of the latter are of English make.

France and Germany export to this country stamp, photo, and scrap albums. A few are made in Canada.

Cotton flags are all Canadian, but the best bunting and silk flags are imported from England and France.

Fancy photo frames, in brass and other metals, as well as in cardboard and enamel, are mostly of German make. A few are American.

All celluloid goods come from New York. Zylonite, an imitation, is English.

Letter presses are mainly from the United States and letter balances from Great Britain.

Key rings and chains, gold and silver paper, and telescopes are nearly all from France. Penholders are brought from the United States and Germany.

Leather goods.—Most of the leather goods used are manufactured in Canada. The leather is imported already tanned and prepared to be cut up into purses, belts, valises, etc. Germany, England, and the United States are the chief exporters in this line to Canada. Morocco or goatskins, real Russian and seal skins, for purses, wallets, etc., come from Great Britain. Some seal-skin is from Germany. Alligator, already tanned and glazed, comes principally from Florida. Russia leather is wholly an English product. The Americans have a close imitation of it, but most of the goods are from the old country. Walrus, monkey skin, sea lion, hippopotamus, etc., are generally made of seal, a different grain on them being their only title to the fancy names. Snake and lizard skins wear out so quickly that very few are used, and they are expensive. They come from England and the United States. Calfskins are brought from the United States, Germany, and England.

Canadian manufacturers use their own sheepskins much more than imported goods. Those that do come in are from Germany, England, and the United States. The rough sheepskin used for blank books is nearly all Canadian.

The metal fittings and frames for stationers' leather goods are all imported from England, France, and Germany.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *October 27, 1902.*

CANADIAN PEAT-FUEL OPERATIONS.

Recognizing that a good and cheap substitute for anthracite coal would prove a great boon to the people of many States of the Union, and having learned that the efforts in Canada to produce dense fuel blocks from peat have within the last few months been brought to a successful issue, I have made careful inquiry with a view to reporting whatever has been definitely accomplished; and I find that practical experiments, which have been perseveringly continued for some years, have now resulted in the economical production of a salable peat fuel, highly satisfactory for domestic purposes.

Manufacturing operations on a commercial scale have been reported upon by engineers of high standing, and all agree in the opinion that methods and appliances are now available whereby peat briquettes may be produced, ready for shipment, for a maximum manufacturing cost of $1.50 per ton, and probably for considerably less in plants of large capacity.

A number of experienced business men and Government officials concur in the engineers' conclusion, and I find that the large majority of customers are much pleased with the fuel, which, if burned with proper regard to the few simple precautions necessary to insure best results in combustion, can not fail to meet the most exacting requirements heretofore expected of anthracite coal. There is, however, some difference of opinion as to the length of time a given weight of peat briquettes will burn, as compared with the same weight of anthracite. Theoretically, the heat units in peat being fewer, it may be argued, it must burn out faster; but with effective control of drafts, it is surprising how nearly its lasting quality approaches that of hard coal, due doubtless to the fact that more perfect combustion is usually had in the burning of peat under ordinary conditions, the waste in burning coal certainly being greater than in peat briquettes, both fuels being fired by methods in common use.

Preeminently to two individuals (Jos. M. Shuttleworth, of Brantford, Ontario, and Alex. Dobson, of Beaverton, Ontario), in association with the Peat Machinery Supply Company, Limited, of Toronto, and the Peat Development Syndicate, Limited, of Brantford, is due the success of this new industry; and it is satisfactory to note that conclusions do not rest on mere laboratory experiments, but on results demonstrated at practical plants, turning out fuel in commercial quantities.

The machinery in operation at Beaverton is reported by the secretary of the Ontario bureau of mines as "withstanding the test of steady usage, producing sufficient fuel for the town, with some over for shipment;" and this official says, further: "With this plant in successful operation, very substantial evidence is furnished of the advance of the industry to a commercial basis."

Peat fuel has been made at the property of the Peat Industries, Limited, near Welland, and at the Brunner bog, by the Stratford Peat Company; but in both cases the permanent equipment of the plants has been wisely deferred until, by sufficiently long usage, selection can be made among the several appliances available. This end has been served by the operations of the past few months, and the coming spring, it appears, will witness very general activity in peat-fuel manufacturing in Canada.

A word of caution to intending operators may be timely. I notice many references in the public press—especially in papers published in the Western States—in regard to the formation of companies proposing to utilize peat beds. I think it would be well to give publicity to the following Canadian experiences: Fully $400,000 has in the course of seven or eight years been practically wasted in futile attempts made in this line by many persons and corporations. It would appear advisable for all intending operators to confer with those in Canada, who have the advantage of thorough acquaintance with peat in its practical manipulation, before adopting untried methods or appliances. European practice, I am told, although successful in many instances environed by special circumstances—notably cheap manual labor—can not be profitably followed on this side of the Atlantic; and the opinion of Mr. J. G. Thaulow, the Norwegian Government's peat master, sustains this conclusion. He says: "The fuel [in Canada] is undoubtedly made at a manufacturing cost within $1.25 per ton, and the machinery and methods employed I regard as highly satisfactory." He could suggest nothing known in Europe as preferable, but, on the contrary, admitted the gain secured by use of the ingenious mechanical appliances used here, making unnecessary, to a very great extent, the employment of hand labor.

Another source of danger of which those approaching this new industry should be apprised lies in the unsuitability of many peat deposits for practical use; only bogs of an average depth of 4 feet and upward and of considerable area (at least 100 acres) should be selected on account of the expense of the plant. Fully as serious a danger lies in the selection of lands without regard to quality of the peat, feasibility of drainage, and accessibility to some means of transportation. All these points should be carefully considered. Mr. E. J. Checkley, of Toronto, who has been intimately connected for years with peat development in Canada, is investigating peat properties in Illinois, Wisconsin, and Minnesota. He reports that the grass peats of Wisconsin appear to carry so great an admixture of alluvial substances as to make the percentage of ash too high to admit of the satisfactory use of the peat for commercial purposes; the moss peats of northern Wisconsin are much superior in quality, although further removed from large centers affording the best markets.

Feasibility of drainage is essential, as no appliances appear to have been perfected as yet by which a submerged bog can be profitably worked. Satisfactory transportation facilities should also be treated as a potent factor in the problem.

The Canadian industry has profited by the cooperation existing among the organizations and individuals I have mentioned as interested in peat development, obviating one source of weakness arising out of attempts made by individual patentees, whose achievements usually embrace only one appliance, leaving many important steps wholly unprovided for. Every one of the many links required to complete the chain of apparatus for a complete outfit should be made sure of, before investors embark in the enterprise.

In view of the grave anxieties the fuel problem has recently excited, I am led to regard this industry as of more than passing interest, and I purpose supplying in further reports information covering the mechanism constituting a peat-fuel plant, and other points of interest as to peat fuel, peat gas, peat-moss paper, and the distillation of peat for the extraction of by-products.

EDWIN N. GUNSAULUS,
TORONTO, *October 31, 1902.* *Consul.*

RAILWAY PROJECTS IN PERU.

Under date of October 15, 1902, Minister Dudley, of Lima, reports:

An interesting proposal for railroad construction has been recently made to the Peruvian Government by American capitalists who have acquired the larger portion of the valuable copper mines of Cerro de Pasco. This line would extend from one of the ports or inlets of one of the two most northern littoral departments of Peru (Piura or Lambayeque) to a point on the Marañon River, thence to a point in the vicinity of the Manseriche, with a view to reaching navigable waters emptying into the Amazon. This interoceanic route would cross the Andes at the point of their lowest elevation—2,186 meters (7,170 feet), according to Raimondi. As part of the same project, a line is proposed from a point on the Marañon to Cerro de Pasco, with branches to adjacent regions found capable of industrial exploitation. The Peruvian Government has conceded to these gentlemen the exclusive right for two years to make preliminary surveys along the routes mentioned, and, in case the practicability of the enterprise should be demonstrated, has agreed to enter into a definite contract with them under the terms of existing law. Messrs. McCune and Haggin, the capitalists referred to, are now engaged in building a railroad from the terminus of the Transandine line at Oroyo to Cerro de Pasco.

The following has also been received from Consul K. K. Kenneday, of Para, under date of October 17, 1902:

An American engineer, Mr. J. C. James, of New York, who has just arrived from an extensive tour in the region above Iquitos, Peru, informs me that the Peruvian Government desires to build a railroad which will connect the head waters of the Amazon with the western coast, and for this purpose offers enticing inducements to capital. This road is to be constructed from Pongo de Manseriche, the extreme head of navigation on the Amazon River, through the

Departments (States) of Loreto, Lambayeque, and Piura, to the city of Piura, where it will connect with the present railroad from Piura to Paita—a distance of 40 miles.

This road will be about 450 miles in length. The Peruvian Government is now constructing a mule road between these two points. Whether the new railroad will follow the track of the mule road is a matter to be determined by the engineers.

It has generally been considered a matter of practical impossibility to build a railroad across the Andes, but recent explorations by competent engineers have discovered a pass northwest of Iquitos through which the governor of Loreto, Don Pedro Portrilla, a famous explorer, believes a road can be constructed on a grade not exceeding 3½ per cent.

The construction of this railroad will open up to civilization and commerce one of the most productive regions in the world. After crossing the main range, the road will traverse the great plateau of northern central Peru—a land of perpetual spring. In this vast and fertile valley, all the products of the temperate and subtropical zones can be produced in quantities unknown to less-favored localities, and four crops a year can be reaped.

The mineral riches of this plateau have been reputed for centuries to be the greatest in the world. There are, also, along the line of this railroad vast forests of valuable hard woods—mahogany, walnut, and dyewoods—which, with the cheap labor of the country, can be handled with great profit, once the problem of transportation is solved. There are, besides, vast areas of the finest grazing lands.

Here, also, are found rubber and gutta-percha forests, offering these commodities in quantities unknown elsewhere in the world.

It is difficult to measure the vast importance of this enterprise. With the completion of the Panama Canal, Paita, the seaport terminus of the proposed railroad, will be but eight days' steam from New York.

For the building of this road the Peruvian Government, it is said, guarantees 7 per cent interest on all money invested and grants large concessions of mineral and agricultural lands. The builders of this road will control the traffic of the Upper Amazon and its tributaries, the importance of which can be understood only by those acquainted with the country and its trade.

Pongo de Manseriche, or "Falls of the Amazon," the eastern terminus of the proposed road, is six days' steam above Iquitos, Peru. This is the place where the mighty river breaks through the Andes Mountains. Above Pongo de Manseriche, the country is practically terra incognita to all save a few hardy scientists and explorers.

Before leaving Iquitos, Mr. James fitted out an expedition, under the command of Mr. William Gerdeau, to explore the Rio Santiago, a tributary of the Amazon, a few miles above Pongo de Manseriche. This territory, it is said, has never been penetrated by white men. Mr. Gerdeau will travel through the country of the famous head hunters, the most dangerous savages in all South America. It is expected that if he makes the trip successfully he will bring information in regard to gold and copper deposits which will attract wide interest.

Mr. James, who represents a syndicate of New York, Boston, and Pittsburg capitalists, informs me that he has obtained from the Peruvian Government a contract to pave the streets, widen and straighten the avenues, construct sewerage, erect waterworks, put up an ice factory and lighting plant, place in operation a telephone system, and build a street railway in Iquitos. This is a city of some 20,000 people, about 3,000 miles above Para. Mr. James further advises me that negotiations with the Manaos officials are on the way, looking to the completion of a similar contract to improve the city of Manaos, which has a population of 40,000, and is situated about 1,000 miles above the mouth of the River Amazon.

IMPORT DUTIES IN THE DOMINICAN REPUBLIC.

Under date of October 4, 1902, Minister W. F. Powell, of Port au Prince, sends translation of a decree of September 12, 1902, regarding import duties in the Dominican Republic, which reads as follows:

Considering that the importation duties with which in some countries our agricultural products are burdened are equivalent in certain cases to prohibition, and that it is a good economic doctrine to facilitate to the said products an entry into those countries by means of reciprocal commercial treaties, since it is not possible to have absolute control of free exchange—

On the advice of the council of the secretaries of state, it is decreed:

ARTICLE 1. There shall be four classes of tariffs for the collection of the importation duties of the Republic—the minimum, the moderate, the additional, and the maximum. The minimum shall cover those import duties at present in vigor or those that may be established in the future; the moderate, the same duties, with an augmentation of 30 per cent; the additional, the same duties, with a 70 per cent augmentation; the maximum, the same duties, with 100 per cent augmentation.

ART. 2. For the purpose of this decree, there shall be fixed in this Republic on sugar, coffee, cocoa, and tobacco the following amount for each 50 kilograms (110.2 pounds) of weight: On sugar of 94° to 98° grade of purity, $2 United States gold; on that lower than 94° and on cane sirup, $1.50 United States gold; on cocoa, $10 United States gold; on coffee, $12 United States gold; on tobacco, $10 United States gold.

ART. 3. The minimum tariff shall be applied to all goods coming from any country where there is no duty levied on any one of the aforesaid Dominican products more than 20 per cent of the value that is fixed on the articles before mentioned or where the introduction of the said products shall be free. There shall be applied the moderate tariff on all imports from the countries that collect on any of the said Dominican products 21 to 30 per cent of the value expressed above. There shall be applied the additional duties to those that come from countries that collect on any of the Dominican products indicated 31 to 40 per cent of the value above expressed. There shall be applied the maximum tariff to those products that come from countries that collect in any manner whatever on the Dominican products indicated more than 40 per cent of the value above expressed, or where the entry is prohibited.

SECTION 1. The colonies of a nation, as well as the divers entities that constitute a confederation or state, shall be considered, for the purpose of this decree, as the state or nation to which they may belong, though they of themselves may not collect importation duties on the Dominican products described in article 2, or may collect them in a less proportion than the state or nation to which they appertain.

SEC. 2. The products that may come from these countries to the Republic, shall be considered as from such countries, unless it be known with certainty that such products are not the result of the agriculture or industry of those countries, or unless the particular marks that the articles bear, or other clear and precise indications, determine the country of origin without any kind of doubt.

ART. 4. The increase of the duties that articles shall pay when coming from countries where more than 20 per cent is charged on the Dominican products, to which this decree refers, shall be applied thus:

Ten per cent, four months after the promulgation of this decree; 30 per cent, seven months after the said promulgation; 70 per cent, ten months after; and the whole, one year after the promulgation of this decree.

ART. 5. With the nations with whom we may have treaties of reciprocity, the stipulations of these treaties shall regulate the application of this decree.

NEW JAPANESE TARIFF.

Minister Buck, of Tokyo, October 16, 1902, sends copy of a revised tariff schedule, to take effect April 1, 1903, as follows:

Description.	Old duty.		New duty.	
	Yen.		*Yen.*	
Ammunition.				
Shot per 100 kin*	....	....	2.187	$1.08
Provisions.				
Biscuits:				
Sea per kin	....	....	.021	.01
Fancy do	....	....	.054	.03
Butter do	0.086	$0.04	.099	.05
Cheese do	.054	.03	.062	.03
Coffee do	.088	.04	.064	.03
Flour per 100 kin	.465	.23	.456	.23
Ham and bacon per kin	.065	.03	.065	.03
Mutton per 100 kin	1.849	.92	2.383	1.19
Condensed milk (1-pound cans) per dozen	.371	.18	.347	.17
Salt:				
Rough per 100 kin	.083	.04	.082	.04
Refined do	1.370	.68	1.768	.88
Salted fish do	.871	.43	.709	.35
Salted meat, in casks do	1.292	.64	2.020	1.00
Kantengusa or tokorotengusa do	.513	.26	.590	.29
Artificial butter per kin	....	....	.057	.03
Clothing and accessories.				
Undershirts and drawers:				
Cotton per 12 pieces	1.410	.70	1.642	.82
Woolen do	2.543	1.26	3.525	1.76
Undershirts, woolen and cotton mixture do	1.812	.90	2.165	1.05

* 1 kin = 1.33⅓ pounds.

Description.	Old duty.		New duty.	
Drugs, medicines, etc.	*Yen.*	.	*Yen.*	
Carbolic acid........per kin*...	0.036	$0.02	0.049	$0.02
Salicylic acid........do.....	.157	.08	.075	.04
Tartaric acid........do.....	.073	.04	.065	.03
Alum........per 100 kin...	.198	.10	.227	.11
Antipyrine........per kin...	....	....	.361	.18
Biyakujutshu........per 100 kin...	.877	.44	1.051	.52
Bismuth, subnitrate........per kin...	.306	.15	.305	.15
Borax (soda, bichlorate)........per 100 kin...	.877	.44	1.166	.56
Camphor........per kin...	.367	.18	.466	.23
Cassia or cinnamon bark........per 100 kin...	.723	.36	.902	.45
Cassia or cinnamon oil........per kin...	.202	.10	.158	.07
Cataria, leaves of........per 100 kin...	.539	.27	.680	.34
Cinchona or Peruvian bark........do.....	1.732	.86	3.022	1.50
Cinnabar........per kin...	.096	.05	.098	.05
Cloves........per 100 kin...	1.885	.94	1.822	.91
Cocaine, hydrochlorate of........do.....	12.983	6.47	18.498	9.21
Colomb........per 100 kin...	.517	.26	.997	.50
Cutchor, catechu, and gambier........do.....	.927	.46	1.131	.56
Gentian........do.....	1.364	.68	1.077	.54
Ginseng........per kin...	....	....	.447	.22
Glycerin........do.....	.036	.02	.035	.02
Gum arabic........per 100 kin...	1.307	.65	1.463	.73
Gum benzoin........do.....	1.124	.56	1.110	.55
Gum olibanum........do.....	.560	.28	1.141	.57
Hops........per kin...	.058	.03	.092	.05
Iodoform........do.....	.511	.25	.432	.22
Ipecac........per 100 kin...	36.620	18.23	67.033	33.38
Jalaps........do.....	4.581	2.28	4.279	2.13
Licorice........do.....	.923	.46	.939	.47
Mawo or mawong........do.....	.383	.18	.626	.31
Morphine........per kin...	4.643	2.31	4.654	2.32
Musk........do.....	....	....	41.175	20.50
Artificial........do.....	....	....	10.494	5.23
Nard or spikenard........per 100 kin...	1.520	.76	1.807	.90
Potash:				
Bromide of........per kin...	.093	.05	.101	.05
Iodide of........do.....	....	....	.283	.14
Potchuck........per 100 kin...	1.410	.70	1.706	.85
Quinine, hydrochlorate or sulphate of........per kin...	....	....	1.322	.66
Resin........per 100 kin...	.298	.15	.348	.17
Rhubarb root........do.....	....	....	1.392	.69
Saffron........per kin...	1.177	.59	1.718	.86
Saltpeter........per 100 kin...	.980	.49	.972	.48
Santonin........per kin...	.380	.19	.967	.48
Sarsaparilla root........per 100 kin...	1.681	.84	2.175	1.08
Wormseed or semen cynae........do.....	1.522	.76	1.781	.89
Shellac........per kin...	.055	.03	.043	.02
Soda ash........per 100 kin...	.351	.17	.394	.20
Soda:				
Bicarbonate........do.....	.457	.23	.367	.18
Caustic........do.....	.454	.23	.633	.32
Crystal or washing........do.....	.227	.11	.423	.21
Salicylic........per kin...	.142	.07	.115	.06
Sojutsu or changshaku........per 100 kin...	.462	.23	.532	.27
Stick-lac........do.....	1.870	.93	1.140	.57
Vaseline........do.....	1.642	.82	1.664	.83
Wogon or wanling........do.....	.499	.25	.651	.32
Acids:				
Boracic........do.....	....	....	1.658	.83
Acetate........per kin...	....	....	.024	.01

* 1 kin=1.33⅓ pounds.

Description.	Old duty.		New duty.	
Drugs, medicines, etc.—Continued.	*Yen.*		*Yen.*	
Tannin .... per 100 kin*	....	....	7.425	$3.70
Ammonia, carbonate .... do	....	....	2.113	1.05
Creosote, carbonate .... per kin	....	....	.351	.17
Potassium, bichromate of .... per 100 kin	....	....	1.922	.96
Dyes, colors, and paints.				
Blue (Chinese, Prussian, etc.) .... per 100 kin	6.690	$3.33	6.233	3.10
Cobalt, oxide of .... do	34.628	17.24	47.308	23.56
Emerald green .... per kin	....	....	.035	.02
Gallnuts .... per 100 kin	1.715	.85	2.892	1.44
Gamboge .... do	6.802	3.40	5.924	2.95
Gold liquido .... per kin	....	....	18.339	9.13
Indigo:				
Dry .... per 100 kin	....	....	21.427	10.67
Liquid .... do	....	....	7.137	3.55
Lead, all colors .... do	1.070	.53	1.327	.66
Logwood, extract of .... do	2.397	1.19	2.166	1.08
Mangrove bark .... do	.119	.06	.149	.07
Oil paints .... do	1.304	.65	1.418	.71
Safflower .... do	....	....	2.498	1.24
Spanwood .... do	.235	.12	.234	.12
Turmeric .... do	.384	.19	.486	.24
Ultramarine .... do	1.749	.87	1.793	.89
Varnish .... per kin	....	....	.044	.02
Chinese varnish .... per 100 kin	3.272	1.63	4.173	2.08
Verdigris .... do	2.297	1.14	3.678	1.83
Vermilion .... per kin	.120	.06	.143	.07
Warsho or gosu .... per 100 kin	5.423	2.70	6.172	3.07
White zinc .... do	1.230	.61	1.318	.65
Fustic, extract of .... per kin	....	....	.022	.01
Glass and glassware.				
Window (uncolored and unstained) .... per 100 square feet	.400	.20	.628	.31
Plate, silvered or unsilvered .... do	....	....	6.896	3.43
Beads, known as Venetian beads .... per 100 kin	....	....	1.738	.87
Broken or powdered .... do	....	....	.065	.03
Grain and seeds.				
Barley .... per 100 kin	.101	.05	.106	.05
Beans .... do	.129	.06	.137	.07
Sesame .... do	.197	.10	.250	.12
Wheat .... do	....	....	.150	.07
Cotton seed .... do	.044	.02	.068	.03
Horns, ivory, skins, hair, shells, etc.				
Bones (beast) .... per 100 kin	....	....	.403	.26
Hair, pig .... do	....	....	8.594	4.28
Hides or skins:				
Bull, ox, cow, and buffalo (raw, dried, salted, or pickled, and undressed) .... per 100 kin	.962	.48	1.176	.59
Deer (raw, dried, salted, or pickled, and undressed) .... do	1.588	.79	2.121	1.06
Samba (cerous elephus), (raw, dried, salted, or pickled, and undressed) .... per 100 kin	.661	.33	1.053	.52
Hoofs .... do	.414	.21	.172	.09
Horns:				
Bull, ox, or cow .... do	.504	.25	.454	.23
Deer .... do	.654	.33	.915	.46
Ivory or tusks:				
Elephant .... per kin	.298	.15	.459	.23
Walrus or sea horse .... do	.162	.08	.112	.06

* 1 kin = 1.33⅓ pounds.

Description.	Old duty.		New duty.	
Horns, ivory, skins, hair, shells, etc.—Continued.				
Leather:	*Yen.*		*Yen.*	
Sole........per 100 kin*...	7.441	$3.71	10.137	$5.05
All other........do......	....	....	12.700	6.32
Indian-red leather........do......	....	....	5.335	2.66
Tortoise shell:				
Shells and claws........per kin...	....	....	1.218	.61
All other........do......	....	....	.122	.06
Metals and metal manufactures.				
Antimony, ingot and slab........per 100 kin...	....	....	.391	.19
Bar and rod, brass........do......	3.070	1.53	5.195	2.59
Plate and sheet........do......	3.086	1.54	4.748	2.36
Pipes and tubes........do......	....	....	4.924	2.45
Old (only fit for remanufacturing)........do......	.915	.46	.986	.49
Copper:				
Bar and rod........do......	3.464	1.73	5.206	2.59
Plate and sheet........do......	3.488	1.74	5.155	2.57
Nails........do......	3.956	1.97	6.010	2.99
Pipes and tubes........do......	....	....	5.948	2.96
Wire........do......	7.496	3.73	6.306	3.14
Old (only fit for remanufacturing)........do......	.799	.40	1.342	.67
German silver (plate, sheet, and wire)........do......	6.020	3.00	7.583	3.78
Iron and mild steel:				
Pig and ingot........do......	.083	.04	.113	.06
Bar and rod (of diameter exceeding one-fourth of an inch)..do......	.356	.18	.464	.23
T angle and other wrought iron and mild steel........do......	.313	.16	.539	.27
Hoop and band........do......	.427	.21	.502	.25
Rails........do......	.297	.15	.384	.19
Dog spikes thereof........do......	....	....	.588	.29
Fish plates thereof........do......	....	....	.471	.23
Sheet and plate, corrugated........do......	.853	.42	.867	.43
Steel and plate (corrugated excepted)........do......			.499	.25
Galvanized sheet and plate, plain or corrugated........do......			.953	.47
Plate, diagonal or checked........do......	.345	.17	.486	.24
Nails (dog spikes, bolts and nuts, etc., not galvanized)...do......	.575	.29	.583	.29
Tinned plates, plain........do......	.691	.34	.961	.48
Wire and small rod not exceeding one-fourth of an inch in diameter (tinned)........per 100 kin...	....	....	.605	.30
Telegraph wire, galvanized........do......	.591	.29	.676	.34
Wire rope—				
Galvanized........do......	1.367	.68	1.280	.64
Not galvanized........do......	....	....	1.874	.93
Old (galvanized or otherwise)........do......	.109	.05	.127	.06
Old hoops........do......	.103	.05	.141	.07
Old iron and other iron and mild steel (only fit for remanufacturing)........per 100 kin...	....	....	.144	.07
Lead:				
Pig, ingot, and slab........do......	.368	.18	.420	.21
Sheet........do......	.753	.38	.982	.49
Pipes and tubes........do......	....	....	1.148	.57
Mercury........do......	5.689	2.83	7.617	3.79
Nickel........do......	3.529	1.76	4.831	2.47
Steel (not mild):				
Bar and rod........do......	....	....	1.699	.85
Sheet and plate........do......	....	....	.689	.34
Wire and small rod not exceeding one-fourth of an inch in diameter........per 100 kin...	1.819	.91	1.936	.96
Wire for umbrella ribs (trough shaped)........do......	2.145	1.07	2.315	1.15
Wire rope, plain or galvanized........do......	1.647	.82	2.654	1.32
Old wire rope (only fit for remanufacturing)........do......	.117	.06	.256	.13
Tin, pig and slab........do......	1.992	.99	3.377	1.68

* 1 kin=1.33⅓ pounds.

Description.	Old duty.		New duty.	
Metals and metal manufactures—Continued.				
Yellow metal (Muntz metal):	*Yen.*		*Yen.*	
Sheet and plate .... per 100 kin*	2.871	$1.43	4.042	$2.01
Rod and bar .... do	2.586	1.29	4.244	2.11
Zinc:				
Block, pig, and slab .... do	.451	.22	.559	.28
Sheet (No. 2 excluded) .... do	1.303	.65	1.407	.70
Old sheet and other zinc (only fit for remanufacturing) .... do	.297	.15	.353	.18
Powder:				
Bronze .... do	11.264	5.61	12.216	6.08
Zinc .... do	....	....	12.221	6.09
Candles and oils.				
Candles, all kinds .... per 100 kin	3.522	1.75	3.857	1.92
Oil:				
Beans and pease .... do	.744	.37	.914	.46
Castor (in tins, casks, and jars) .... do	1.060	.53	1.193	.59
Cocoanut .... do	1.181	.59	1.387	.69
Groundnut .... do	1.122	.56	1.293	.64
Linseed (in tins and casks) .... do	1.724	.86	2.502	1.25
Olive (in tins and casks) .... do	2.929	1.46	3.043	1.52
Spirits of turpentine (in tins or casks) .... per gallon	.076	.04	.106	.05
Paper and writing utensils.				
Ink:				
Lithographic .... per kin	....	....	.118	.06
Printing .... do	....	....	.028	.01
Paper:				
Printing .... per 100 kin	1.757	.88	1.569	.78
Cardboard .... do	....	....	1.449	.73
Sugar, candy, and molasses.				
Sugar:				
Up to No. 14 in Dutch standard in color .... per 100 kin	.204	.10	.271	.14
Refined -				
From Nos. 15 to 20, as indicated in Dutch standard in color .... per 100 kin	1.523	.76	1.540	.77
Above No. 20, as indicated in Dutch standard in color .... do	1.828	.90	1.601	.80
Rock candy .... do	2.213	1.10	2.449	1.22
Molasses .... do	.157	.08	.131	.07
Tissues, yarns, threads, and raw materials.				
Cotton yarn, plain or dyed .... per 100 kin	6.066	3.02	8.130	4.05
Bookbinders' cloth .... per square yard	....	....	.026	.01
Cotton:				
Damasks .... do	....	....	.032	.02
Dolls, gray and white or bleached .... do	.029	.01	.024	.01
Duck .... do	.080	.04	.097	.05
Prints .... do	.020	.01	.023	.01
Sateens, brocades, Italian and figured shirtings .... do	.029	.01	.038	.02
Velvets or velveteens .... do	.062	.03	.080	.04
Shirting:				
Gray .... do	.010	....	.012	.01
White or bleached .... do	.015	.01	.018	.01
Twilled .... do	.017	.01	.023	.01
Dyed .... do	.020	.01	.026	.01
T-cloths .... do	.015	.01	.018	.01
Turkey-red cambrics .... do	.018	.01	.021	.01
Victoria lawns .... do	.009	....	.010	....
Cotton mosquito netting .... do	....	....	.023	.01
Plush and velvets, mixed with silk and cotton, the latter predominating in weight .... per square yard	....	....	.201	.10
Cotton flannel .... do	....	....	.033	.02

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* 1 kin=1.33⅓ pounds

Description.	Old duty.		New duty.	
Tissues, yarns, threads, and raw materials—Continued.				
Woolen and worsted yarns for weaving purposes, plain or dyed, per 100 kin*........	*Yen.* 12.308	$6.13	*Yen.* 12.360	$6.16
Alpacas........per square yard...	.113	.06	.095	.05
Buntings........do......	.058	.03	.048	.03
Camlets, lastings, and crape lastings........do......	....	....	.049	.03
Flannels:				
Wool........do......	.068	.03	.075	.04
Wool and cotton........do......	.062	.03	.072	.04
Italian cloth........do......	.053	.03	.056	.03
Long ells........do......	.061	.03	.056	.03
Mousseline de laine, of wool:				
Gray or white........do......	.033	.02	.041	.02
Dyed or printed........do......	.035	.02	.068	.03
Serges (the warp is worsted and the weft woolen)........do......	.097	.05	.077	.04
Spanish stripes........do......	....	....	.074	.04
Woolen and worsted cloths of all kinds:				
Woolen and worsted........do......	.141	.07	.166	.08
Wool and cotton........do......	.071	.04	.083	.04
Woolen and worsted damasks........do......	....	....	.068	.03
Woolen felt........do......	....	....	.061	.03
Silk:				
Raw or thrown........per 100 kin...	55.130	27.45	79.716	39.70
Tussah, raw........do......	....	....	30.503	15.19
Crape, Chinese........per square yard...	....	....	.277	.14
Pongee, Chinese (Kenchu)........do......	....	....	.058	.03
Satins—				
Chinese........do......	.270	.13	.432	.22
Figured, Chinese........do......	....	....	.285	.14
Silk-faced cotton satins........do......	....	....	.196	.10
Flax or linen yarns, plain or dyed........per 100 kin...	8.159	4.06	10.126	5.04
Flax or linen:				
Threads........per kin...	....	....	.202	.10
Canvas........per square yard...	.071	.04	.088	.04
Flax damasks........do......	....	....	.091	.05
Blanketing and whipped blankets:				
Plain woven........per 100 kin...	13.984	6.47	12.887	6.42
All other........do......			16.573	8.25
Carpets and carpeting:				
Brussels........per square yard...	.271	.13	.412	.21
Felt........do......	.067	.03	.073	.04
Jute or hemp........do......	.047	.02	.096	.05
Patent tapestry........do......	.265	.13	.215	.11
Chikufu........do......	.027	.01	.042	.02
Elastic boot webbing:				
Silk in part........do......	....	....	.855	.43
All other........do......	....	....	.470	.23
Handkerchiefs:				
Cotton—				
Single........do......	.017	....	.025	.01
In piece........per dozen...	....	....	.068	.03
Hemp, in piece........do......	....	....	.291	.15
Hemp and cotton, in piece........do......	....	....	.180	.09
Leather cloth for furniture........per square yard...	.043	.02	.056	.03
Oilcloths and linoleum cloths for floors........do......	.071	.04	.119	.06
Wines, liquors, and spirits.				
Champagne and other sparkling wines, 12 bottles, each not exceeding 1 liter, or 24 bottles, each not exceeding one-half a liter, per case........	5.423	2.70	9.136	4.55

* 1 kin=$1.33\frac{1}{3}$ pounds.

Description.	Old duty.		New duty.	
Wines, liquors, and spirits—Continued.				
Wines of all kinds up to 16 per cent of alcohol:	*Yen.*		*Yen.*	
In cask.....per liter*...	0.043	$0.02	0.051	$0.03
In case of 12 bottles, each not exceeding 1 liter, or 24 bottles, each not exceeding one-half a liter.....per case...	2.660	1.32	2.972	1.48
Under 24 per cent volume, inclusive, and above 16 per cent volume, exclusive of alcohol:				
In cask.....per liter...	.277	.14	.177	.09
In case of 12 bottles, each not exceeding 1 liter, and 24 bottles, each not exceeding one-half a liter.....per case...	2.380	1.19	4.693	2.34
Miscellaneous.				
Aloe wood.....per 100 kin†...	8.688	4.33	12.581	6.27
Asbestus in sheet or board.....do.....	....	....	1.268	.63
Caoutchouc and gutta-percha:				
Crude.....do.....	....	....	5.855	2.92
Sheet.....do.....	....	....	17.905	8.92
Celluloid in sheet or rod.....per kin...	.196	.10	.187	.09
Cement, Portland.....per 100 kin...	.089	.04	.102	.05
Chalk and whiting.....do.....	....	....	.245	.12
Coal.....per ton...	.879	.44	1.129	.56
Coke.....do.....	.789	.39	1.557	.78
Cordage and ropes of flax, hemp, jute, manila hemp, or china grass (for rigging and other purposes).....per 100 kin...	1.954	.97	2.847	1.42
Cork bark.....do.....	....	....	.990	.49
Corks.....do.....	....	....	6.530	3.25
Dynamite.....per kin...	.100	.50	.061	.03
Fishing gut (tegusu).....per 100 kin...	16.976	8.45	32.072	15.97
Funori (geopeltis intricata).....do.....	.258	.13	.280	.14
Glue (common).....do.....	.972	.48	.886	.44
Gunpowder (smokeless powder excepted).....do.....	2.617	1.30	4.944	2.46
Gypsum.....do.....	.055	.03	.064	.03
Hay.....do.....	....	....	.126	.06
Tallow (beef).....do.....	....	....	1.220	.61
Lard (pig).....do.....	....	....	1.868	.93
Tallow and grease (other than of ox and swine).....do.....	....	....	.949	.47
Malt.....do.....	.544	.27	.581	.29
Mattings:				
China (in rolls of 40 yards).....per roll...	.610	.20	1.004	.50
Cocoa.....per square yard...	.058	.03	.093	.05
Oakum.....per 100 kin...	.712	.35	.749	.37
Packing for steam engines.....do.....	....	....	5.835	2.91
Pitch.....do.....	.187	.09	.149	.07
Wood tar.....do.....	.322	.16	.317	.16
Plaster of paris.....do.....	.174	.09	.115	.08
Plumbago or black lead.....do.....	.730	.36	.991	.50
Pulp (for making paper).....do.....	.297	.15	.342	.17
Putty.....do.....	.234	.12	.219	.11
Rattans (split or otherwise).....do.....	.393	.20	.482	.24
Sandalwood.....do.....	1.434	.71	1.085	.54
Soap (for washing).....do.....	1.085	.54	1.256	.63
Soapstone (in lump or powder).....do.....	.089	.04	.127	.06
Timber:				
Santalum (shitan).....do.....	.175	.09	.166	.08
Teak.....per 100 cubic feet...	7.628	3.80	10.035	5.00

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* 1 liter=1.0567 quarts.

† 1 kin=1.33⅓ pounds.

AUSTRALIAN TARIFF CHANGES.

Consul-General J. P. Bray reports from Melbourne, October 1, 1902, that the tariff of Australia has now passed both the Senate and the House of Representatives. He sends a list of alterations* made by the Senate, consented to by the House, and approved by the Governor-General, as follows:

Alterations in Australian customs duties.

Article.	Previous duty.	New duty.
Division IV.—Agricultural products and groceries.		
9. Arrowroot	1d. (2 cents)	½d. (1 cent).
15. (*b*) Stearin, paraffin wax, beeswax, and Japanese or vegetable wax; also lard and refined animal fats, per pound.	do	Do.
21. Fruits and vegetables: (*f*) Vegetables n. e. i., per cental.	2s. (48 cents)	1s. (24 cents).
36. Meats, fish, poultry, and game: (*c*) Preserved in tins or other air-tight vessels, including weight of contents, per pound.	2d. (4 cents)	1½d. (3 cents).
41. Oilmen's stores n. e. i., including culinary and flavoring essences, soap dyes, condition foods, and other preparations used in the household.	20 per cent ad valorem	15 per cent ad valorem.
53. Starch flours, including rice meal, and rice, tapioca, and potato flours, per pound.	2d. (4 cents)	½d. (1 cent).
54. Straw per ton	5s. ($1.21)	Free.
Division V.—Apparel and textiles.		
65. Parasols, sunshades, and umbrellas, viz:		
(*a*) Containing silk each	30 per cent ad valorem	20 per cent ad valorem.
(*b*) N. e. i. do	do	Do.
(*c*) Parasol, sunshade, and umbrella handles, sticks, and fitups, whether mounted or not.	10 per cent ad valorem	Free.
68. (*b*) Socks and stockings, woolen or containing wool.		15 per cent ad valorem.
71. Yarns, partly or wholly of wool	10 per cent ad valorem	5 per cent ad valorem.
Division VI.—Metals and machinery.		
77. Mangles, clothes wringers, and washing machines.	15 per cent ad valorem	12½ per cent ad valorem.
78. Manufactures of metals, viz:		
(*a*) Agricultural, horticultural, and viticultural machinery and implements, n. e. i., including shares and plow plates cut to shape, horse gears, and road-making plows, scoops, horse head rollers, and machines.	do	12 per cent ad valorem.

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* For the original tariff and other changes, see ADVANCE SHEETS Nos. 1201, 1238, 1248, 1284, 1300, 1309, 1319, 1333; CONSULAR REPORTS Nos. 256, 258, 260, 261, 262 (January, March, May, June, and July, 1902).

Alterations in Australian customs duties—Continued.

Article.	Previous duty.	New duty.
Division VI.—Metals and machinery—Continued.		
78. Manufactures of metals, viz—C't'd.		
(*h*) Engines, gas and oil, and high-speed engines and turbines, water and steam.	15 per cent ad valorem	12 per cent ad valorem.
(*i*) Engines	do	Do.
(*j*) Boilers, pumps, machines, and machinery, n. e. i.	do	Do.
(*p*) Mining machinery, n. e. i.	do	12½ per cent ad valorem.
(*r*) Electrical machinery	do	Do.
(*s*) Electrical appliances, n. e. i.	do	Do.
79. Rails, fish plates, fish bolts, tie plates, switches, points, crossings, and intersections for railways and tramways.	do	Do.
80. Rolled iron or steel beams, channels, joists, girders, columns, trough and bridge iron or steel, not drilled or further manufactured; shafting, cold rolled, turned, or planished; also bolts and nuts.	do	Do.
Division VII.—Oils, paints, and varnishes.		
84. Oils: (1) Solar oil, residual oil, per gallon.	½d. (1 cent)	¼d. (½ cent).
Division X.—Wood, wicker, and cane.		
111. (*b*) Ax and other unattached tool handles.	20 per cent ad valorem	15 per cent ad valorem.
Division XII.—Leather and rubber.		
120. (*b*) Composition belting	20 per cent ad valorem	15 per cent ad valorem.

COPPER IN NEW SOUTH WALES.

The first mining of copper began in this country in 1845, since which time copper ore has been found in more than 300 localities, and of these 38 have been more or less worked.

The following is a list of properties. The last 12 are now worked; also the "Great Cobar" and the "Nuntherungie." These are mostly furnished with reverberatory furnaces; five are using blast furnaces, or have ordered them.

Name of mine.	Located near—	Year opened.	Depth of workings.
			Feet.
Copper Hill	Molong	1845	146
Belububla	Canowindra	1845	504
Summerhill	Rockley	1846-47	90
Good Hope	Yass	1848-49	
Coombing Park	Carcoar	1850	180
Carangara	Orange	1850	240

Name of mine.	Located near—	Year opened.	Depth of workings. Feet.
Cadia	Orange		222
Icely	Carcoar	1851 to 1865	275
Ophir	Ophir		200
Britannia	Orange		210
Moonta	do		60
Nelson	do		120
Currowong	Lake George	1865	168
Belmore	Cowra	1867	
Do	Delegate	1868	
Goodrich	Wellington	1868	150
Great Cobar	Cobar	1869	540
Nuntherungie	Wilcannia	1872	
Essington	Rockley	1872-73	
Peelwood	Tuena	1873	
Wiseman Creek	Rockley	1873	162
Cow Flat	Bathurst	1873	180
Milburn Creek	Mount McDonald	1873	300
Frogmore	Burrowa	1873	373
Belara	Wellington	1874-75	200
Snowball	Adelong	1874-75	136
Apsley	Rockley	1875	250
Armstrong	Bathurst	1875	
Burraga	Burraga	1876-77	800
Burley Jack	Woodstock	1877	262
New Mount Hope	Moss Vale	1878	400
New Central	do	1878	720
Nymagee	Nymagee	1879	720
Bobby Witlow	Bingara	1880	110
Girilambone	Nyngan	1880	500
Annandale	Blayney	1881	
Captain's Flat	Captain's Flat	1882	600
Cornish	Barraba	1895	167
Mayfield	Burrowa	1895	125

The ore produced is classified as follows:

1. Native copper.
2. Red oxide, the richest of all.
3. Black oxide (malaconite), the second richest.
4. Green carbonite (malachite), one of the most common.
5. Blue carbonite (chessylite).
6. Gray sulphide (chalcocite); this occurs in massive forms in most lodes.
7. Variegated (bornite), found abundantly in the Burley Jack mines; 30 per cent copper.
8. Yellow sulphide (chalcopyrite), 34½ per cent copper. This is one of the commonest and most important of the ores. It usually bears a small proportion of gold and silver. The width of vein is from a film to 100 feet fluxes.

GREAT COBAR MINE.

The most successful of all the mines opened is the Great Cobar, 459 miles west of Sydney. From 1876 to 1893, 213,182 tons of ore were treated, which produced 23,610 tons of copper. Dividends were paid, amounting up to 1889 to about $770,000. Further dividends have been paid up to the present date, making a total of $12.50 per share.

The smelting plant consisted in 1890 of four 80-ton water-jacket blast furnaces; working capacity, 120 tons in twenty-four hours. Two others have since been put in. Cobar now has a branch railroad, which has greatly facilitated the development of the mines. The country around is a level stretch of ground, encompassed by low hills. The base is sandstone and slate.

THE NYMAGEE MINE.

This mine is also in the western and arid part of New South Wales, 40 or 50 miles from the Great Cobar, without railway facilities, in slate rocks of sandy character.

Three shafts have been sunk, the lowest level of the principal one being 720 feet. The lode here is massive sulphide, 30 feet wide, and contains 2 per cent copper, though narrow seams of good copper occur in it. There is a blast furnace, and pyritic smelting has been also practiced. The ore contains a little silver, but no gold. The ore body averages about 10 per cent copper.

In 1896, the mine produced 3,249 tons of ore, which made 380 tons of copper. In that year, the mine passed into the hands of the Great Cobar Company, by whom it is still operated.

THE GIRILAMBONE MINE.

This mine is situated 405 miles on the Western Railway line. The rocks about it are schistose slates, sandstones, and quartz, with numerous cupriferous quartz veins. The deposit is as much as 40 feet wide in places, associated with quartz. This makes concentration necessary, with considerable loss of copper. The deepest working level is 520 feet. Five reverberatory furnaces are used, with one refining furnace. The copper is of fine quality. The figures of yearly output are not available.

MOUNT HOPE MINE.

This mine is about 90 miles south of the Great Cobar, is a bedded deposit, and is in a country similar to that surrounding the other deposits. The lode is in ferruginous slates and sandstones.

The ore chiefly consists of impregnations and segregations, requiring concentration before smelting. At 270 feet, earthy blue and green carbonites and red oxides of copper and some large octahedral crystals of cuprite were found.

The sulphide ores are of high grade, but are wanting in iron sulphides, making it necessary to procure iron ores from a distance of 12 miles for flux.

The total output of this mine from 1881 to 1898, inclusive, was 5,070 tons of refined copper.

LAKE GEORGE MINE.

This copper deposit is 177 miles south of Sydney and about 25 miles from the Cooma Railroad. It has an elevation of 2,700 feet above sea level, differing in its surroundings from the other mines described. The sulphide ore is a mixture of iron pyrites, galena, and zinc blende. The silver and gold found in the ores add much to their value.

In the months of January and February, 1899, 10,732 tons of ore were smelted, producing 565 tons of matte, gold, silver, and copper.

GULF CREEK MINE.

This mine is 351 miles north of Sydney and 72 miles from the railway. The lode has an average width of 25 feet and is 350 feet long. It averages about 10 per cent copper; a stope taken out of the entire length averaged 14 per cent. The country rocks are indurated clay stones of carboniferous age, with dykes of serpentine.

The ore consists of massive iron pyrites, permeated by chalcocite, so that the whole material is black. Rapid decomposition causes so much heat that one can hardly keep his hand on the ore. There are no statistics available as to the product of this mine.

From the foregoing statements, it is clear that copper may become a resource of great wealth to Australia at no very distant day, if conditions are made favorable for the investment of capital in working the mines.

ORLANDO H. BAKER,
Consul.

SYDNEY, *October 6, 1902.*

WATERWORKS FOR APIA.

A civil and mining engineer of Strassburg, Germany, Mr. Emil Haaben, has recently visited this island with the view of organizing a company to supply Apia with waterworks. The enterprise represents a capital of $40,000, secured by local merchants, planters, and European capitalists.

The water will be pumped from a subterranean spring into a reservoir holding about 100,000 gallons. The motive power for the pump will be obtained from the Vaisigano River, by means of either a turbine or an overshot wheel. In the event of a shortage in the supply of the river water, a traction steam engine will be utilized. This engine will be provided with a stone crusher, water car, and all appliances for macadamizing roads, making concrete, etc., and will be rented to the Government when not wanted for pumping purposes.

After the completion of the waterworks, Mr. Haaben intends to erect ice and electric-light plants. Manufacturers of articles for the enterprises named, especially of machinery, tools, galvanized pipes, cast-iron pipes, and fittings, should communicate with Mr. Emil Haaben, civil and mining engineer, Vogesen Strasse 51, first floor, Strassburg, Germany.

GEO. HEIMROD,
Consul-General.

APIA, *September 30, 1902.*

TRADE CONDITIONS IN TONKIN.*

Correspondence with the head of the Colonial Department in Paris and interviews with Government officials in Lyons fail to elicit any definite information concerning proposed improvements at the port of Haiphong, Indo China. I have, however, learned in a general way that it was the intention of the Government to make such improvements in the port as to give free room for the largest ocean steamers, for which $4,000,000 was to have been voted. While plans were being adopted for the work, a new governor—M. Beau—was appointed for the colony, and the work was postponed until he is sufficiently at home in his new post to undertake it. I am assured that nothing will be done on the improvement within the next two or three months.

Haiphong is a city of 16,000 inhabitants, the first port and the second city of Tonkin. The population of Tonkin is about 6,800,000, among whom are 2,500 Europeans. The capital of Tonkin—Hanoi—has a population of 50,000. M. Ulysse Pila, of Lyons, in a lecture on Tonkin delivered in this city, stated that almost everything can be grown there, and that the country offers an opening for many varieties of business. The raw silk produced is of an inferior quality and is sold for 14 francs ($2.72) per pound. The soil of Tonkin, in and around the rich bottom lands of the Red River at Haiphong, is capable of producing everything known to agriculture. The climate is enervating, but not dangerous. Healthful food, regular meals, plenty of sleep, and abstinence from alcoholic drinks are declared to be the only safeguards necessary in order to avoid fevers and other diseases feared by Europeans.

Tonkin has been compared to Java. Besides being able to produce everything that Java can produce, it offers a good field for silk culture. Students of the French colonies advise the extensive culture in Tonkin of tea, tobacco, coffee, silk, indigo, cotton, ramie, oil seeds, and flax.

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* In reply to inquiries by a Member of the House of Representatives, to whom ADVANCE SHEETS have been sent.

The following figures show the foreign trade of Tonkin for the years mentioned:

Year.	Imports.	Exports.
1873	$46,774,800	$64,553,600
1877	64,555,800	90,611,800
1881	66,637,200	74,392,800
1885	58,324,000	78,989,800

I would advise anyone wishing information in regard to Indo China to obtain a copy of the report of the Lyonnese Commission to that country. It consists of two large quarto volumes, rich in large maps and engravings, with special information of a commercial character. It is at present out of print and can rarely be had. At my request, a book dealer of this city secured me a copy for an American, who afterward declined to take it. I have no doubt but it would fill a useful place in our National Library or in the library of any one of our chambers of commerce. The price asked for it is $20.

JOHN C. COVERT,
Consul.

LYONS, *October 18, 1902.*

DEMAND FOR AMERICAN VEHICLES AT HARPUT.

No attempt has yet been made to introduce vehicles of foreign construction at either Harput or Diarbekir. In both cities, there are a few heavy cab phaetons with movable top, manufactured in or near Constantinople, which have been imported by prominent Government officials. They are exceedingly clumsy and badly constructed of poor materials. The springs, especially, give way at slight provocation, and nearly all are tightly wound with rope to remedy as far as possible their fractured condition.

Outside of these few vehicles, there are none available for pleasure riding, or for quick, easy, business communication.

I have been earnestly requested by representatives of the class which would naturally use such articles to secure the entrance into this market of American vehicles suited to local conditions.

There is among Turkish residents a general admiration for the light, elegant appearance of American carriages, as shown frequently in the illustrated periodicals kept at the service of visitors at this consulate, while many residents of Armenian origin, who have spent more or less time in the United States, are desirous of enjoying here the facilities to which they became accustomed abroad.

There are a few types of our standard vehicles which should find a ready sale in this region. In all cases, the construction of wheels and axles, as well as of springs, should be of the most solid and durable character. Other parts should be as light as is consistent with durability. Broad tires are preferable.

The following types are worthy of note by our exporters:

Landaus, *phaetons*, *surreys*, *and vis-a-vis.*—A few vehicles of this nature could be readily sold, if of not too expensive construction.

Carts and traps.—There is an excellent opening for light, strong carts, such as are largely supplied to the South African market. The same physical conditions exist here. I am convinced that a cheap but substantial and comfortable cart would be quickly appreciated.

Buckboards.—The American buckboard might be of marked value in solving the question of light transportation for this region. Special points in its favor would be low freight charge and simplicity of make, with less liability to breakage. There is an almost entire lack in this country of elastic woods suitable for the construction of buckboards or similar vehicles.

Farm carts and wagons.—In addition to the opening for vehicles of the above character, there is a distinct demand for farm carts and wagons, or at least for the wheels and axles. There is a pressing need for better vehicles than the crude ox carts and buffalo carts now exclusively used by the farmers of this region.

Catalogues and export rates for agents can be forwarded to this consulate (post-office address, Mamouret-ul-Aziz, Turkey in Asia), and every effort will be made to secure efficient representation of houses wishing to secure this market.

THOMAS H. NORTON,
HARPUT, *October 1, 1902.* *Consul.*

GOLD COAST RAILWAY.

Consul-General H. Clay Evans, of London, under date of October 17, 1902, sends clipping from the London Financier, with reference to railway building on the west coast of Africa, which may be found of interest to parties furnishing railway supplies and equipment. He says that Messrs. Shelford & Sons, engineers, of London (No. 1 Delahay street), have been doing much work of this class. The clipping quotes Mr. Shelford as saying:

> We have now reached Obbuassi, the headquarters of the Ashanti Gold Fields Corporation—that is, so far as the earthworks are concerned. The rails have been laid as far as the Offin River, and, unless anything unforeseen occurs, they should reach Obbuassi at the end of this year. Within the last three or four months, we

have been making splendid progress; the rate of construction has been as much as 6 or 7 miles a month. The actual construction of the Kumasi extension was started in May of last year. * * *

There have been plenty of engineering difficulties, but the great obstacle was the survey. It was hard to carry out the survey, first of all owing to the climate, and then, again, owing to the fact that for at least 50 miles the country had been quite unexplored. There was one belt of jungle, for instance, that stretched for 50 miles without a track. Route after route had to be surveyed, and at no part could one see more than a few yards ahead. All this jungle had to be cleared. * * *

Labor was troublesome at first—that is, at the commencement of the extension. Just before the extension from Tarquah was begun, we had come down to 1,000 men, and we had to import laborers from Lagos, and so got our strength up to 15,000, which was ample. At first we could not get natives; they were very timid about working, but by treating them properly we managed to gain their confidence, and now we can get as many natives of the Gold Coast Colony as we like. The Ashantis, who are excellent workmen, are coming to work for us. The regular rate of wages for unskilled labor is 1s. 3d. (30 cents) a day. The natives when trained properly make excellent skilled workmen. On the Lagos Railway, for instance, they are employed as guards, porters, station masters, and many are to be found in the workshops as mechanics and artificers.

When the railway is quite finished, it will be 126 miles long—Sekondi to Tarquah is 40 miles, and the extension another 86 miles. The line is a 3-foot 6-inch gauge.

No 268—03——10

NOTES.

Flour Mills in Ireland.—Consul-General H. Clay Evans sends from London, October 16, 1902, an article from the Irish Times, on corn milling, as follows:

A statement is made to-day to the effect that a group of American financiers contemplate the expenditure of a large sum of money, estimated at from one to three millions sterling, in connection with the Irish milling trade. This industry has practically succumbed to the invasion of foreign flour, the great bulk of which is imported from America. The new scheme, if successfully carried through, will stimulate the industry, as new mills, it is stated, are to be erected in all the more important centers of Ireland. The capital is, according to a well-known local merchant, set down at $20,000,000. It is intended by the syndicate to turn out 5,000 tons weekly in Belfast; in Derry, Galway, Cork, and Waterford, 3,000 tons each; and in Dublin, 5,000 tons—making a total of 22,000 tons.

The few remaining flour mills in existence are mainly engaged in the grinding of maize, or indian corn, and it is to this branch of the trade that the American syndicate are directing their attention, with the view of an extensive and far-reaching development.

It is contemplated to erect a large mill for the grinding of corn in Belfast, and a network of other mills for the same purpose at other seaport towns in Ireland, such as Dublin, Derry, Waterford, Cork, Galway, and Sligo. The main idea is to have the mills erected at the water's edge, and built on the quays, where the cargoes of corn can be discharged into them by means of elevators; a great saving would thus be effected in the cost of cartage and unloading. Another feature of the undertaking is to have a fleet of small steamers, from 150 to 200 tons carrying capacity, that could distribute the indian meal from the principal manufacturing depots to the small seaport towns adjoining the principal centers, which would effect an additional saving in railway freights and other expenses.

The mill to be erected in Belfast, if the undertaking is carried out, will be a very large one, having an output of 5,000 tons weekly, which will more than meet local needs, and after supplying country districts will leave a surplus for exportation to Scotland.

During the year 1901, according to the Belfast harbor commissioners' returns, there were 202,786 tons of indian corn imported into Belfast alone, or about 4,000 tons per week. There is an import duty of 5s. ($1.24) a ton on this article.

The Cleansing of Fruit.—Consular Clerk G. H. Murphy, of Frankfort, transmits, November 7, 1902, a translation from the Hanover Courier, as follows:

Dr. B. Ehrlich, a physician of Strassburg, has recently completed a course of experiments at the Institute of Hygiene and Bacteriology in the University of Strassburg in regard to the infection of fruit with bacteria, and has published a report on the subject in the Archiv fuer Hygiene.

Everyone knows that, in the condition in which it is placed upon the market, the surface of fruit is almost always unclean; but it is not so generally known that on the surface of such fruit millions of microscopic creatures exist which may injuriously affect health. It has already been proven that in certain cases cholera, typhus, and tuberculosis have been transmitted in this way. The danger can be partially obviated by peeling or washing the fruit. In order to determine the degree of uncleanliness in market fruit, Dr. Ehrlich washed fruit of various kinds and then ascertained by a reliable process the numbers of the bacteria thus removed. In this manner, he found that 200 grams (about half a pound) of the fruits examined supported upon their surface bacteria in the following numbers: Huckleberries, 400,000; damsons, 470,000; mirabels (yellow plums), 700,000; pears, 800,000; gooseberries, 1,000,000; garden strawberries, 2,000,000; raspberries, 4,000,000; grapes, 8,000,000; currants, 11,000,000; and cherries, 12,000,000.

These figures teach how necessary it is that all fruit should be cleaned before it is eaten. In view of his experiments, Dr. Ehrlich recommends that before fruit is eaten, it should always be thoroughly washed, preferably in running water, and that the washing should be repeated when dry matter is observed to be adhering to the fruit.

Changes in German Customs Tariff.—Under date of November 10, 1902, Ambassador White, of Berlin, sends copies of the official Central-Blatt, giving certain changes in the tare allowance of various articles when packed which are to go into effect January 1, 1903. The following table shows the changes:

Current number.	Number of customs tariff.	Designation of articles.	Manner of packing.	Tare allowance on the percentage of gross weight.	
				Old.	New.
1.	2.	3.	4.	5.	6.
1	5*b*	Ultramarine	Boxes	$3.57	$3.094
2	9*k*	Table clusters of grapes	Boxes, and at the same time laid in sawdust.	4.76	11.186
3	10*f*	Glass inkstands, in connection with other material.	Boxes	9.52	4.284
4	25*f*	Natural butter	Kegs: Other hard wood than oak, especially beech wood.	3.09	2.618
			Oak wood, in gross weight of less than 50 kilograms (110.2 pounds).	3.09	2.895
			Soft wood, in gross weight of 50 kilograms and over.	3.09	2.38
5	$25q^{2}$	Flour of grain	Covering of light linen, light cotton cloth, or light, loose-woven jute.	....	.238
6	$25v^{1}$	Tobacco leaves, unmanufactured.	Wrapper of heavy reed mats, sewed with reed and hemp cords and tied up with hemp cord.	.714	1.43
7	38*f*	Flowers, also united with wire, and table service of porcelain.	Kegs	10.71	8.57

International Congress of Hygiene and Demography at Brussels.—The Department has received from the Belgian legation, Washington, under date of November 3, 1902, notice of the International Congress of Hygiene and Demography, to be held at Brussels from September 2 to September 8, 1903. An invitation is extended to the United States to be officially represented, and the wish is expressed, in behalf of the Minister of Foreign Affairs, that committees of propaganda, composed of persons eminent in medical science and hygiene, be organized in the different States, with whom the central committee at Brussels may correspond. The questions to be discussed will include bacteriology, microbiology, parasitology applied to hygiene; alimentary hygiene, applications of chemical and veterinary sciences, sterilization, use of antiseptics; sanitary technology; industrial and professional hygiene; hygienic transportation; best means of disinfection; administrative hygiene, aim and organization of medical inspection, quarantine regulations, and supervision of tenement houses; colonial hygiene, malaria, beriberi, etc.; demography. Blank applications and copies of regulations and programmes, sent by the legation, are filed for reference in the Bureau of Foreign Commerce.

Russian Trade and Finances in 1902.—Consul-General W. R. Holloway writes from St. Petersburg, October 18, 1902:

The total exports from Russia during the first six months of 1902 amounted to 346,352,000 rubles ($178,371,280), of which amount 1,124,000 rubles ($578,860) went to the United States, against 1,643,000 rubles ($845,945) during the same period in 1901. The total import into Russia for the same period was 254,487,000 rubles ($131,060,805), of which 23,038,000 rubles ($11,864,570) came from the United States, against 20,739,000 rubles ($10,680,585) for the same period in 1901. It must be remembered that these figures do not state the entire imports from the United States, as most goods shipped from the United States to Russia are sent through Germany, England, and Denmark, and are credited to those countries.

According to the official accounts of receipts and expenditures of the imperial Russian finances, the ordinary receipts for the first six months were 849,164,000 rubles ($437,319,460), more than 40,000,000 rubles ($20,600,000) above those of the same period of last year. The extraordinary receipts were 195,264,000 rubles ($100,560,960), or nearly thrice as much as last year, making a total of 1,044,428,000 rubles ($537,880,420), against 866,182,000 rubles ($446,083,730) in 1901.

Russian Railroad Orders.—Consul Samuel Smith reports from Moscow, October 17, 1902:

According to the latest official statement, the following Government orders for railroad supplies were executed by Russian works during the period from 1900 to 1902:

	Rubles.	
1900	94,300,000=	$47,150,000
1901	91,400,000=	45,700,000
1902 (first half)	74,100,000=	37,055,000

For the current year, the following orders for rolling stock (not yet distributed) will be granted only to Russian works: 110 engines and 63 passenger and 4,660 freight cars, to the value of 10,100,000 rubles, or $5,050,000.

The orders for next year are on a much larger scale:

	Rubles.	
1,670 engines	58,200,000=	$29,100,000
22,000 cars	25,000,000=	12,500,000
316,666 tons of rails	23,700,000=	11,850,000
Total	106,900,000=	53,450,000

Iron and Coal Industries in Russia.—Under date of October 17, 1902, Consul Samuel Smith, of Moscow, says:

According to a statement lately published by the statistical bureau of the mining department, the production of coal and iron for the first six months of this year, compared with the corresponding six months of 1901, was:

Description.	Production.		Decrease.	
	Poods.	*Tons.*	*Poods.*	*Tons.*
Coal	310,000,000	5,166,666	50,000,000	833,333
Cast iron	44,500,000	741,666	400,000	6,666
Wrought iron	35,000,000	583,333	3,000,000	50,000
Coke	58,000,000	966,666	5,000,000	83,333

Out of 18 blast works, there are only 14 in operation, with 56 blast furnaces. There are about 20,000 men unemployed in the coal mines and iron works. In consequence of the stagnation in all branches of industries in Russia, several companies have been ruined.

Russian Grain Crops.—Consul Samuel Smith writes from Moscow, October 27, 1902:

The following figures are given by the Department of Agriculture as to the condition of grain crops in European Russia, the Baltic provinces, and the Caucasus:

Crop.	Quantity.	
	Poods.	*Tons.*
Rye	1,346,657,000	22,444,283
Wheat:		
Winter	342,239,000	5,703,983
Spring	466,484,000	7,774,733
Oats	776,349,000	12,939,150
Barley	396,499,000	6,608,316
Millet	156,585,000	2,609,750

From the above figures, the crop in European Russia is considered to be above the middle average.

German Trade with Cuba.—Consular Clerk G. H. Murphy sends from Frankfort, under date of November 9, 1902, the following translation from the Berlin South American Outlook:

The transfer of the Pearl of the Antilles from Spanish ownership to the control of the American Union has not, during the past year, exerted any injurious effect upon European trade with the island. On the contrary, the Cuban demand for German wares is, judging from the figures for 1901, considerably increasing.

In the years 1895 to 1897, the annual exportation to Cuba from Hamburg amounted to between 2,000,000 and 3,000,000 marks ($476,000 and $714,000); in 1898, it was 1,700,000 marks ($404,600); in 1899, 5,900,000 marks ($1,404,000); in 1900, 8,800,000 marks ($2,094,400); and in 1901, 10,200,000 marks ($2,427,600).

The needs of the Cuban market are exceedingly varied, Hamburg export statistics showing that 124 different kinds of merchandise were shipped from that port to Cuba last year. The importation into Cuba from Hamburg of rice alone increased in the past year from 1,100,000 to 4,500,000 marks ($261,800 to $1,071,000). Shipments of other articles increased as follows: Malt, from 60,000 to 167,000 marks ($14,280 to $39,746); cotton wares, from 151,000 to 262,000 marks ($35,938 to $62,356); hosiery, from 260,000 to 496,000 marks ($61,880 to $118,048); and paper, from 202,000 to 387,000 marks ($48,076 to $92,106).

In 1901, there was a slight decrease in shipments of ironwares, passementerie, and toys, but the amounts exceeded those for 1899.

The condition of Cuba's export trade with Germany is also favorable, although the results in 1901 fell somewhat short of those for the preceding year. In 1895, Germany imported from Cuba merchandise valued at 16,000,000 marks ($3,808,000); in 1898, 6,700,000 marks ($1,594,600); in 1899, 12,300,000 marks ($2,927,400); in 1900, 13,200,000 marks ($3,141,600); and in 1901, 12,900,000 marks ($3,020,200). The principal articles taken by Germany in 1901 were cigars valued at 7,000,000 marks ($1,666,000) and raw tobacco valued at 3,000,000 marks ($714,000), a decrease of 800,000 marks ($190,400) in cigars and an increase of 400,000 marks ($95,200) in raw tobacco. Other articles furnished by Cuba to Germany in 1901 were wood valued at 1,000,000 marks ($238,000), wax valued at 865,000 marks ($205,870), and cattle skins valued at 300,000 marks ($71,400).

New German-South American Steamship Service.—Consular Clerk G. H. Murphy sends from Frankfort, October 14, 1902, the following translation from the Berlin South American Outlook, of October 1:

During its first voyage to central Brazil, the new post steamship of the Hamburg-American Line, *Prinz Eitel Friedrich*, has been greeted with enthusiastic ovations at every port visited. From Bahia the Hamburg company received a congratulatory telegram signed both by Brazilian officials and by merchants. At Rio de Janeiro a brilliant banquet on board the vessel was attended by the highest Brazilian authorities, the German minister, the German consul, resident merchants, and others. Column-long articles appeared in the local journals of Rio praising the practical arrangement of the new ship and the comfort and simple elegance of the rooms provided for the use of passengers. When the ship left Rio she was escorted to the entrance of the harbor by numerous steamers and other vessels.

At Santos the vessel was at once visited by throngs of visitors, crowds also coming down from Sao Paulo to see the new steamship; among these visitors being representatives of the two German newspapers in Sao Paulo, Germania and Deutsche Zeitung. An article in the former ends as follows:

"The Hamburg-American Company deserves credit for having sent here the first large modern German steamship arranged for the transportation of both passengers and merchandise. It is our earnest wish that the Hamburg-American Company, of which we Germans abroad are not less proud than our relatives at home, will be able to contribute to the ever-growing commercial relations between Germany and our adopted fatherland. The sending out of the *Prinz Eitel Friedrich* is a good beginning."

The practical result of this first expedition to Brazil of a steamship of the *Prinz* class was a full cargo coming and going, the ship being heavily laden on the home voyage with coffee and tobacco.

German Carrying Trade to and from Brazil.—The following translation from the Berlin South American Outlook is sent by Consular Clerk G. H. Murphy, of Frankfort, November 6, 1902:

Recent negotiations between the Hamburg-American Line, the Hamburg-South American Steamship Company, and the English Booth Steamship Company concerning the arrangement effected between the two Hamburg companies about two years ago, in regard to traffic with northern Brazil, have led to an agreement which, especially from a national standpoint, should be welcomed with joy in Germany. The English Booth Line has absolutely transferred to the two united Hamburg companies the business which it has been handling between Hamburg and northern Brazil for about thirty-six years, and has also withdrawn from Antwerp. Accordingly, the carrying trade from Amazonas to the European continent will henceforth be in the hands of the Hamburg companies, which, on the other hand, surrender to the English company the carrying trade between northern Brazil and England, as well as the United States.

The paragraph of the agreement which relates to return-voyage freight rates deserves especial attention, as it is therein fixed that the rate to England must always be the same as to the Continent. As is well known, the principal market for rubber—the chief export article of northern Brazil—is now Liverpool, although a large portion thereof (experts say three-fourths of the entire importation) is consumed upon the Continent, principally in Germany and Russia. In future, German and other continental merchants and manufacturers will accordingly be able to import their rubber directly and at less cost than when it was brought via Liverpool. It is therefore to be hoped that this advantage won for the German flag by the Hamburg companies will make German merchants in this business also independent of England.

Duty on Cement and Pipes in Costa Rica.—Consul J. C. Caldwell sends from San José, November 10, 1902, translation of a decree clipped from the Limon Weekly News, as follows:

ARTICLE 1. Roman cement and earthenware tubes introduced for exclusive use in the port of Limon for sidewalks and sewer connections will be free of duty and wharfage.

ART. 2. This exemption from duty will last until the 30th of April, 1903, exclusive, and will be subject to the following conditions:

1. That said materials come consigned to the order of the governor of Limon.
2. That before authorizing the withdrawal of any quantity of these articles, the said official will demand from the interested party a signed declaration with respect to the place where they will be employed in conformity with the law.
3. That the owner of the articles pay, in proportion to the importations, the warehousing and other indispensable charges that the Government may have to pay for the execution of this decree.

ART. 3. If the articles thus retired be used outside the port or for any other object than that authorized, the introducer will pay a fine three times the value of the duty and wharfage, and will lose besides the cement and tubes that he may still have in deposit to the order of the governor.

Communication with Barbados.—Consul S. A. Macallister reports from Barbados, October 24, 1902:

In consequence of the prevailing epidemic of smallpox at Barbados, the steamers of the Royal Mail Steam Packet Company, which have for some years past met every two weeks at this port for the landing and transferring of passengers and cargo, have changed their itinerary so as to make Trinidad the port of meeting during the prevalence of the disease. This is another severe blow to the interests of the people here. It is probable that as soon as the disease disappears, the steamers will meet at Barbados as heretofore. I would state, in this connection, that there has been a considerable decrease in the number of cases during the past two weeks.

Packing Postal Parcels for Honduras.—Consul W. E. Alger reports from Puerto Cortez, October 22, 1902:

I give below a translation of a notice appearing in the newspapers of Honduras:

In order to avoid damages and also claims, interested parties are asked to advise their correspondents abroad to be more careful in the packing of postal parcels, as the greater part of the time they arrive in bad condition, with the contents soiled and deteriorated. It would be wise to pack such parcels in cloth, well sewed, or in oiled or impermeable paper. * * * Signed, Director-General of Post-Offices.

I would add that, of my personal knowledge, postal parcels from England, France, and Germany arrive here in perfect condition, only those coming from the United States being improperly packed.

Open Ports in Cuba.—Vice-Consul-General J. A. Springer sends from Habana, November 6, 1902, the following list of ports of the island of Cuba open to importation and exportation of merchandise, as communicated by the Secretary of State and Justice:

Habana.
Matanzas.
Cardenas.
Ysabela de Sagua.
Caibarien.
Nuevitas.
Gibara.
Baracoa.
Guantanamo.
Santiago.
Batabano.
Manzanillo.
Santa Cruz.
Tunas de Zaza.
Cienfuegos.
Trinidad.

There are also the subports, says Mr. Springer, such as Banes, Puerto Padre, Nipe, Sama, etc., which are authorized for the exportation of fruit of the country, and in some cases for the importation of foreign merchandise, but depend directly on the administration of customs in the ports opened.

American vs. European Trade in Cuba.—The Department is informed that dealers in machinery in Cuba have a decided advantage in placing their orders in Europe instead of in the United States, because in the actual condition and state of affairs they get (1) lower prices, varying from 10 to 30 per cent, according to class of machinery and materials; (2) lower shipping rates; (3) quicker delivery; and (4) terms of payment more advantageous, as European manufacturers are willing to sell their goods on time, while American manufacturers want cash. It is stated that even in case a large reduction of duty, preferential to the United States, should be conceded by Cuba on the articles referred to, the lower prices and freight rates, quicker delivery, and easier terms of payment would fully compensate for the higher customs duties that Cuban dealers would have to pay on the European machinery and materials.

Exhumation and Removal of Bodies in Cuba.—Under date of October 30, 1902, Minister Squiers, of Habana, transmits a translation of the laws and ordinances now in force in Cuba regarding the exhumation and removal of bodies. The regulations are those of the royal order, March 19, 1848, summarized as follows:

The exhumation and removal of bodies is forbidden until two years after date of burial, when special permission of the civil governor and of the church, as well as two medical certificates to the effect that said exhumation will not be prejudicial to the public health, must be obtained. The certificates shall be issued individually by two medical men appointed by the civil governor; in case of disagreement, there shall be a third. The fees for examination shall be $17 in Habana for each practitioner, and $12.75 in the other provinces of the island. All charges arising from the exhumation shall be borne by the parties interested. Embalmed bodies may be exhumed and removed at any time, and without medical certificates.

Demand for Fruit-Handling Apparatus in New Zealand.—Messrs. G. H. Grapes & Co., horticultural merchants of Paraparaumu, Wellington, New Zealand, write to the Bureau of Foreign Commerce:

> I would feel obliged if you would kindly place me in touch with manufacturers of wood-working machinery for fruit cases and boxes for packing glass, especially those making a suitable description of reciprocating three-bladed gang-saw machines; also with makers of the apparatus necessary for the equipment of a small fruit-preserving plant (suitable for turning out 1,000 to 10,000 2-pound glass jars of jam per diem) and for jelly making and fruit bottling; also with makers of first-class fruit-grading machinery on the automatic principle—the above to be worked by a 12-horsepower engine. I would be glad to hear from makers of such engines and boilers. I already use many American tools and machinery, and highly appreciate their labor-saving qualities. I am practically an American in my thoughts and methods.
>
> We have a wide field here for agricultural machinery, and I feel sure if you draw the attention of your manufacturers to this rapidly advancing colony of the British Empire, you will be conferring a benefit upon all.

Import of Cacao into Samoa.—Consul-General Geo. Heimrod writes from Apia, September 16, 1902:

In view of the danger resulting from the importation of diseased cacao plants, beans, and pods, the German Government passed on September 6 the following ordinance:

> SECTION 1. The import of cacao seed and cacao plants from Ceylon and the Dutch Indies is prohibited.
>
> SEC. 2. The import of cacao seed and cacao plants from other countries is admissible only after previous sanction of the Government.
>
> SEC. 3. Cacao seed and cacao plants imported from the countries named under section 1 and from others, without previous sanction of the Government, will be

destroyed. Reimbursement of damages caused through this destruction will not be granted.

SEC. 4. Any person who, contrary to the direction of this ordinance, introduces cacao plants or cacao seeds into Samoa will be fined up to 2,000 marks ($476) or punished with imprisonment up to three months.

SEC. 5. This ordinance is in force from date of issue.

Japanese Enterprises and Foreign Capital.—Under date of October 23, 1902, Consul S. S. Lyon, of Kobé, sends the following newspaper clipping:

During the past few months, several municipalities and companies in Japan have applied for foreign loans. Among those who have successfully concluded negotiations is the Yokohama municipality, whose 6 per cent bonds to the amount of 900,000 yen ($448,200) were recently undertaken by Messrs. Samuel Samuel & Co. The same firm also undertook the issue of the Osaka harbor works bonds, to the amount of 3,500,000 yen ($1,743,000), and it has been agreed to issue further bonds for 6,500,000 yen ($3,237,000) a year hence. The Tokyo Gas Company also proposes to introduce foreign capital for the extension of its business, and negotiations are proceeding with Mr. Tison, representative of Mr. Brady, of New York. When Baron Shibusawa returns from Europe, it is expected these negotiations will be completed, half the amount of the capital being in American hands.

As is well known, the Kiushu, Hokuyetsu, and Hankaku railway companies recently applied to Messrs. Baring Brothers, through Messrs. John Birch & Co., for a loan, their application resulting in the visit to this country of Sir William Bissett. A vernacular contemporary says that an inspection of the systems of the companies revealed the imperfections of Japanese railways, and also the barriers placed by the law against the introduction of foreign capital. The beneficial result of Sir William's visit is that the laws are being amended and in consequence, it is reported, the negotiations with the English capitalists are progressing favorably.

Water-Supply Plant for Java.—Consul F. D. Hill transmits from Amsterdam, October 27, 1902, copy of a letter received from the Javasche Electriciteits Maatschappy, Voorheen Hekking & Co., of Amsterdam, with respect to the water-supply plant at Sœrabaya, Java. The letter says:

We should be glad to enter into relations with leading American firms for the supply of all articles which will be necessary at Sœrabaya for the making of the conduits in the houses, when the water-supply plant of that town will be constructed by the Indian government at the beginning of next year. The whole plant is made for account of the Indian government, but the conduits in the houses are to be made by the inhabitants for their own account. Consequently, there will be a large field for the makers of all articles in this line, such as water-pipe fitttings, water-closet fittings, water taps, sanitary goods, baths, etc. We know that American makers in general are not willing to give a stock of their goods to foreign firms, but we beg to draw your attention to the fact that if any American maker wishes to compete with the English and Germans for the above articles he will be obliged to accept the conditions ruling in our colonies. As the dealers in India have to grant credits of nine to twelve months, it will be easily understood that they must have a stock. We should like to arrange with some leading firms to represent them for the Dutch colonies with a stock of their goods. In order to give them a guaranty for the sale of the goods, we are willing to take for our own account all goods not sold within a year's time after arrival at Sœrabaya.

Java-China-Japan Steamship Line.—Under date of October 21, 1902, Consul F. D. Hill, of Amsterdam, says:

The Java-China-Japan Steamship Company will establish a monthly service with three steamers of about 5,000 tons (starting September, 1903) on the following route: Batavia, Samarang, Sœrabaya to Hongkong, Shanghai, Kobé, and Yokohama, returning via Amoy and Hongkong. The steamers will be fitted for transport of goods, for steerage passengers, and for a few cabin passengers.

This line was established in 1902 with a capital of 6,000,000 florins ($2,412,000). It receives the following subsidy from the Netherlands Government: During the first five years 300,000 florins ($120,600), during the next five years 250,000 florins ($100,500), and during the next five years 200,300 florins ($80,400).

Florida vs. Polynesian Phosphate.—Under date of October 22, 1902, Consul J. E. Kehl, of Stettin, says:

It is possible that Florida phosphate will meet a serious competitor in the recently discovered deposits on Ocean Island, northeast of the Solomon Islands, which seem to be superior in quality to either Florida or Christmas Island phosphate. The following analysis was furnished me by the director of the largest local chemical works and importers of the American rock:

Description.	Florida.	Christmas.	Ocean.
	Per cent.	*Per cent.*	*Per cent.*
Tribasic phosphate of lime	76.95	83.08	86.15
Oxide of iron and alumina	2.2	1.83	.68

Local statistics for the year 1901 show an importation into Stettin of 101,156 tons of phosphate, of which 70,341 tons were from the United States

The time required in making the passage from Christmas or Ocean Island to Stettin is fifty-five to sixty days, while from Florida it is twenty to twenty-two days, depending upon the speed of the steamer. The difference in freight rates is said to be about 9s. 6d. ($2.30) per ton.

Argentine Meat for England.—Consul Marshal Halstead reports from Birmingham, November 1, 1902:

The increased cost of meat in this country, owing to the shortage in the supply from foreign countries, is attracting a good deal of anxious attention. Drought has lessened the Australian meat receipts, and there is agitation for the removal of the prohibition on Argentine live stock. The secretary of the board of agriculture several years ago prohibited the importation of cattle from Argentina, owing to the prevalence of mouth disease among live stock there. On October 23 he received deputations from various associations and representatives of the foreign live-cattle market at Deptford, who urged that the restrictions on the importation of Argentine cattle be removed.

Cable to the Canary Islands.—Consul S. Berliner writes from Teneriffe, October 29, 1902:

The cable between Teneriffe and Cadiz is interrupted; it is supposed that the breakage is about 600 miles from here. This cable was laid in 1883, and for the last eight years breakages have been of frequent occurrence; it sometimes happens that months elapse before communication is restored. The islands are not absolutely isolated as regards cable communication, because cablegrams can be sent via Senegal, though at a much increased cost—the difference in the London rate is $1 per word—but to do this, messages must be sent overland to Tejitas, which means a delay of at least twenty-four hours.

Alcohol from Acetylene.—The following, dated October 21, 1902, has been received from Consul T. Haynes, of Rouen:

The producers of alcohol in France are somewhat disturbed because of the new invention by which alcohol is manufactured by synthesis by means of acetylene. Although the process is as yet too costly to endanger their industry, the members of the Society of Agriculture of the Nord, in a recent meeting, issued the following recommendation:

> Considering the facts that alcohol manufactured from fruit and agricultural distilleries can be replaced by mineral fabrication by means of carburet;
>
> That these carburets can be produced economically only in foreign countries possessing powerful waterfalls and special minerals;
>
> That this manufacture will ruin the distillation of roots, grains, and fruits, to the exclusive profit of foreign countries;
>
> The Society of Agriculture of the Nord recommends that a tariff of 50 francs ($9.65) per 100 kilograms (220.46 pounds) be placed on the carburets from foreign countries which are to be used for the manufacture of acetylene.

New Swiss Tariff Law.—Under date of October 31, 1902, Consul-General J. I. McCallum, of St. Gall, reports:

The new Swiss tariff* law has been adopted by the Federal Assembly. If within ninety days of the date of its publication a demand for a popular vote, supported by 30,000 signatures, is not filed with the Federal Chancery, the law will be declared to be in force on January 21, 1903. The new law, as adopted by both Chambers, will be opposed not only by the Swiss Socialistic Union, but by working people in general and by a large number of trades and commercial associations. It seems almost certain (according to the most important newspapers) that the referendum will be taken and the law submitted to public vote.

The same information has been received from Consul A. L. Frankenthal, of Berne.

Progress of Simplon Tunnel.—Consul H. L. Washington, of Geneva, under date of November 6, 1902, transmits a translation from a local paper, as follows:

> The total advance in the works of the Simplon Tunnel up to October 31, 1902, was 13,608 meters (44,648 feet). Of this, 8,060 meters (26,445 feet) was on the Swiss side and 5,548 meters (18,203 feet) on the Italian. In October, the progress of the work was 359 meters (1,177 feet), an average of 11.58 meters (38 feet) per diem. The water flow has been 40 liters (10.5 gallons) per second in the northern and 109 liters (28.8 gallons) in the southern sides.

The time for the completion of the tunnel, adds the consul, has been extended beyond 1904, the date first contracted for.

Animal Industry in Slavonia.—Consul F. D. Chester writes from Budapest, October 13, 1902:

The report of the Chamber of Commerce and Industry at Eszek, Slavonia, for the calendar year 1901 contains a full account of the animal industry and trade in the counties of Veröcze, Pozsega, and Szerem, which formed the old province of Slavonia. It appears that this industry is making powerful strides, and the provincial government of Croatia-Slavonia is doing everything possible to further its interests. Many animals of good quality are brought to the weekly and annual markets. In the district above defined, 98,697 head of cattle were sold, of which 7,000 were fattened and exported mainly to Vienna, Austria. In the same district, 36,274 sheep and 162,601 swine were sold, nearly 3,000 more than in the year 1900.

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*See ADVANCE SHEETS Nos. 1293 and 1309; CONSULAR REPORTS Nos. 260 and 261.

Waterproof Briquettes in Germany.—Consul B. H. Warner reports from Leipzig:

All briquettes which have hitherto been manufactured by means of soluble cements (such as dextrin molasses, lixiviated cellulose, oxidized lignin, resinate of ammonia, etc.) dissolve in water. Richard Bock, an engineer of Merseburg, province of Saxony, has found a method for making briquettes which are entirely waterproof. He heats the finished briquettes until the cement is wholly or partly carbonized, which makes them indissoluble. In case the ignition temperature of the cement is likely to be attained, the heating must take place in an air-tight case or by means of hot gases.

Germany's Foreign Lumber Trade.—Consul W. Schumann sends from Mainz, October 15, 1902, the following account of the foreign lumber trade of Germany, taken from a local newspaper:

> There is no question that prices for foreign lumber are, on the whole, higher now than at the beginning of the year, caused both by a curtailed supply and a better demand. The supply of Swedish lumber is especially short. Russian alder, principally used by box manufacturers, is imported in quantities, and higher prices are being asked for the season of 1903. American pitch pine is being held at higher prices, and for other American lumber, such as oak, poplar, and nut, the demand for first quality is good, while inferior grades are not sought. * * * There seems to be no market for American oak blocks, the demand being chiefly for large, sound logs. Trade in American ash is unchanged and of no great importance. American hickory is seldom used and is only imported in small quantities. Large sales have been effected in cedar wood for cigar boxes, while in cedar wood for pencils trade remains unchanged.

Depression in British Shipbuilding.—Consul F. W. Mahin writes from Nottingham, October 28, 1902:

The shipbuilding trade of Great Britain is comparatively stagnant this fall. The tonnage of merchant ships in course of construction within the Kingdom is less than at any time since 1897. Then, the quantity of work on hand had for a long time been fluctuating between 600,000 and 800,000 tons. In the fall of that year an improvement began, which led up to a tonnage of 1,414,120 a year ago. There has since been a steady decline, to 1,000,714 tons at present. The regularity of the decrease—about 40,000 tons a month—is striking. Several thousand employees have been discharged from the shipyards during the last two months.

British Inquiry for Builders' Accessories.—Consul Marshal Halstead reports from Birmingham, November 18, 1902:

A Birmingham business man with connections in other parts of

Great Britain writes me he is interested in a company which is being formed in Dublin for the sale of builders' accessories, and he wishes to get into communication with American manufacturers who are willing to appoint agents in Ireland for specialties in the building line. Catalogues and letters on this subject may be sent in my care.

Scandinavian-South African Steamship Line.—Consul R. S. S. Bergh reports from Gothenburg, October 25, 1902:

The East India Company, of Copenhagen, is on the point of starting a direct steamship line between Scandinavian ports and southeast Africa. The first steamer for this trade—the *Siam*—will arrive at Gothenburg to-morrow to complete her cargo by loading about 600 standards of dressed lumber, 1,200 cases of condensed milk, etc. As this first trip promises to be a profitable one, the company is likely to send steamers regularly. South Africa has been for many years a fairly good market for Swedish lumber and joinery, and it is expected that the demand will soon be greater than heretofore. The newspapers here even recommend that the Swedes themselves should start a direct steamship line between their country and South Africa.

Demand for Traction Engines in Johannesburg.—Consular Agent W. D. Gordon writes from Johannesburg, October 8, 1902:

I believe that the call for traction engines in this country will be a considerable one, and our manufacturers interested in this line should make an effort to secure the business. The country has been practically stripped of draft animals, and it will be many years before the requirements in this line will equal the demand. If manufacturers will forward this office catalogues, price lists, weights, discounts, etc., I will endeavor to place them in the hands of interested parties. An inquiry has just been received for a corn cleaver and corn mill, to be operated by a traction engine. Several of these can be sold.

Demand for Portable Houses in Cape Colony.—Consular Agent W. D. Gordon, of Johannesburg, under date of October 15, 1902, says:

As this country has been devastated of buildings from one end to the other, and as a largely increased population is already here or en route, our manufacturers of portable houses should be able to secure considerable business. Building material is very high and arrives from the coast very slowly. Any information sent me on the subject will be placed in interested hands.

British Railway in Portuguese West Africa.—A cablegram from Consul J. H. Thieriot, of Lisbon, dated December 1, 1902, informs the Department that a concession has been granted to English capitalists to build 1,400 kilometers (870 miles) of railway, from the Lobito Bay district, Benguela, directly east to the Angola frontier. The road is to be constructed within eight years. After twenty years, Portugal will have the right to purchase the line.

The Tunisian Almond Harvest.—Consul T. Haynes, of Rouen, October 21, 1902, writes:

The harvest of almonds in Tunis for 1902 is estimated at 175,000 kilograms (385,805 pounds). About one-third of this quantity is absorbed by the local demand, both in a green and in a dry state, and many producers sell their harvest while still on the tree; therefore, only about one-half of the stock mentioned can be said to be really on the market. The principal producing centers are: Sfax, 130,000 kilograms (286,598 pounds); Bizerta, 24,000 kilograms (52,910 pounds); and Sousse, 10,000 kilograms (22,046 pounds).

At Tunis, the average commercial value of green almonds in good-sized lots is 15 francs ($2.90) per 100 kilograms (220.46 pounds); the value of dry almonds is about four times as great; and the decorticated fruit brings 205 francs ($39.50) per 100 kilograms. The stock on hand from the preceding harvest is insignificant—approximately 2,000 kilograms (4,409.2 pounds).

International Exposition of Hygiene at Buenos Ayres.—The Department has received from the legation of the Argentine Republic, Washington, under date of October 27, 1902, notice of the International Exposition of Hygiene to be held at Buenos Ayres in connection with the second Latin-American Medical Congress. The congress will hold its sessions in April, 1904. An invitation is extended to public and private institutions interested in the subject to participate in the exposition. Reduced rates for the transportation of exhibits have already been obtained from several steamship companies.

Foreign Insurance Companies in Cuba.—Under date of November 6, 1902, Minister Squiers, of Habana, states that the order of the military government, No. 181, September 27, 1899, relative to the amount of security to be filed by foreign fire-insurance companies* has been unchanged as to such companies, and that the deposit required is still $75,000. Life-insurance, casualty, marine-insurance, and title guaranty and surety companies have to deposit security to the amount of $25,000.

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*ADVANCE SHEETS No. 1447 (September 18, 1902); CONSULAR REPORTS No. 266 (November, 1902).

Physicians in Ecuador.—Consul-General Thos. Nast, of Guayaquil, November 12, 1902, reports:

As numerous letters are received from parties desirous of practicing medicine in this country, asking if they will be allowed to practice without passing examination in Spanish, I wish to say that the law of this country requires all medical men arriving in the Republic to pass an examination before the medical board in Spanish before permission is granted them to practice. I may add that there are so many doctors here that unless the physician be a specialist his chances of obtaining much practice is very doubtful; the market is overcrowded.

Price of Ice in Colombia.—Vice-Consul-General Felix Ehrman writes from Panama, November 1, 1902, that the price of ice has been raised from 5 cents Colombian silver per pound to 12½ cents Colombian silver per pound. This makes the price about 5 cents United States gold per pound. The cause of the increased rate is that the Colombian Government has raised the price of the monopoly, and the ice company had to raise its charges.

Tonnage Dues in Colombia.—The Department has received from consular officers in Colombia* reports in regard to a recent decree of the Government, to the effect that tonnage dues are to be collected on all vessels, including those under the Colombian flag. The decree, which was enforced October 13, 1902, originally exempted ships under the national flag, but it has been changed to include all ships carrying local cargo.

Railway in Dutch Guiana.—Consul G. H. Moulton writes from Demerara, October 22, 1902:

I have to report for the benefit of parties interested in railway construction and equipment that this office has been informed by the United States consular agent at Paramaribo that, according to a statement by the new colonial governor of Dutch Guiana, the Government of Holland will at an early day commence the construction of a railway from Paramaribo to the interior of the colony, for the purpose of facilitating the development of its natural resources.

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*Consul G. W. Colvig, of Barranquilla; Consul O. Malmros, of Colon; Vice-Consul-General F. Ehrman, of Panama; and Vice-Consul J. C. Ingersoll, of Cartagena.

Mortality in Paraguay.—Under date of October 8, 1902, Minister Finch, of Montevideo, incloses copy and translation of an official report regarding the percentage of deaths per thousand in Paraguay in 1901. The report says:

> In the year 1901, there were 16 deaths per 1,000, or 9,000 deaths, with a civilized population of 635,571 persons. In 1900, the deaths numbered 6,200.

German Opening for Canned and Dried Goods.—The Bureau of Foreign Commerce has received a request from Georg H. C. Dreyer, Hüxter 6, Hamburg, for the addresses of first-class American houses selling dried fruits, canned goods, casings, meats, etc., the German agency for which is desired by Mr. Dreyer. The letter adds:

> Our Mr. Georg Dreyer was for some years with Messrs. Knauth & Co., in Hamburg, the branch house of Messrs. Knauth, Machod & Kuhne, of New York, and knows the trade well in Hamburg and throughout Germany.

Fire Engines for La Rochelle.—Consul G. H. Jackson, of La Rochelle, under date of November 5, 1902, reports that two steam fire engines are to be purchased for that city—one for the La Pallice docks, which will be bought by the chamber of commerce, and the other for the municipality. It has not yet been decided whether the engines shall be automobile or drawn by horses. Illustrated catalogues and prices should be sent to M. Jamard, chamber of commerce, La Rochelle, and to M. A. d'Orbigny, mayor of La Rochelle.

French Trade in Bicycles and Automobiles.—Under date of October 18, 1902, Consul T. Haynes, of Rouen, says:

In 1901, the exportation of French bicycles and automobiles amounted to 21,235,887 francs ($4,098,526), as against 4,405,820 francs ($850,323) in 1894. England, especially for automobiles, has been France's best client. The importations for the year 1901 amount to 5,331,840 francs ($1,029,045), as against 10,404,300 francs ($2,008,030) in 1894. These are the latest official figures.

Area of Vineyards in Germany.—Consul W. Schumann transmits from Mainz, October 15, 1902, the following statistics showing the area covered by vineyards in Germany in 1900, as compared with former years:

	Acres.
1878	334,612
1883	336,545
1893	331,445
1900	338,025

Gold in Kamchatka.—Commercial Agent R. T. Greener writes from Vladivostock, September 16, 1902, in regard to the results of an exploration of the western shore of the Kamchatka Peninsula, as well as of the Okhotsk region. The presence of gold was proved in many river valleys. The climate presents no obstacles to winter work, though the season lasts only ninety days. The ridge of mountains between the Jugur watershed and the elevations along the coast is said to be rich in gold. Gold has also been discovered in the vicinity of Hun-Chun, near Posiet. A Russian company, formed at Vladivostock, has leased from the Chinese administration three-fourths of the entire tract. The Chinese will receive 15 per cent of the gross yield, and will maintain a guard of 200 men.

Duty on Chinese Books.—Under date of October 22, 1902, Consul R. M. McWade, of Canton, reports that the Chinese Government has agreed to remit from August 22, 1902, all customs charges on missionary and other books printed in the Chinese language passing from one part of the Empire to another.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
E. Schneegans, Saigon	Oct. 9, 1902	Rice-market conditions	Department of Agriculture.
Do	Oct. 23, 1902	do	Do.
J. K. Gowdy, Paris	Oct. 29, 1902	French patents	Patent Office.
T. Haynes, Rouen	Nov. 7, 1902	French barley and oat harvest.	Department of Agriculture.
W. E. Alger, Puerto Cortez	Nov. 11, 1902	Census of Honduras	Census Office.
C. M. Caughy, Messina	Nov. 1, 1902	Almonds and lemons	Department of Agriculture.
D. Mayer, Buenos Ayres	Oct. 21, 1902	Crop conditions	Do.
J. H. Fesler, Amoy	Oct. 25, 1902	Rainfall in Amoy	Do.
S. Smith, Moscow	Nov. 17, 1902	Russian private schools	Bureau of Education.
B. Johnston, Ceiba	Dec. 1, 1902	Agricultural conditions	Department of Agriculture.
O. J. D. Hughes, Coburg	Nov. 28, 1902	Heated halls for the poor	Department of Labor.
W. Schumann, Mainz	Nov. 20, 1902	Labor conditions	Do.

FOREIGN REPORTS AND PUBLICATIONS.

Import Trade of Persia.—The following extracts are taken from a report in the Bulletin Commercial,* of Brussels:

The import trade of Persia during the period 1901–2 (March 21, 1901, to March 20, 1902) amounted in value to 279,192,438 krans† ($27,174,536), as compared with 212,791,980 krans ($20,711,824) during the preceding year, an increase of 66,400,449 krans ($6,462,712). It should be noted, however, that this increase is not entirely the result of increased trade, but is due in some measure to the progress made in the reorganization of the customs administration by the better supervision of the frontiers, which renders illegal traffic more difficult.

The following table shows the value of the imports into Persia from various countries during the periods 1900–1901 and 1901–2. The figures do not include imports of silver in bars or the trade of the River Karoum.

Country.	Year ended March 20—	
	1901.	1902.
Russia	$9,199,661	$11,071,828
Great Britain	7,361,686	10,327,900
France	1,327,868	2,324,927
Turkey	1,146,781	1,218,100
Austria	983,281	995,749
Afghanistan	144,165	261,671
Germany	122,996	231,913
Other countries	425,390	742,465
Total	20,711,824	27,174,536

From this table, it is seen that eight-tenths of the imports into Persia are of Russian and British origin. An important fact to be remembered is that, owing to the proximity of Russian industrial centers and markets, many merchants from the north of Persia go regularly to the fairs at Nizhni Novgorod and continue the journey to Kief and Moscow, where they complete their purchases. Merchants in the south of Persia, on the other hand, prefer to do business with English and Indian firms at Bushire, Shiraz, and Ispahan. Among the imports of Persia, the first place is held by cotton goods, the trade in which increases considerably every year. The total value of the imports of cotton piece goods during the period March 21, 1901, to March 20, 1902, was $3,991,542, as against $2,412,767 in the preceding period. Great Britain supplies the greater part of the bleached and unbleached cottons for the whole of Persia. Russian goods, although of inferior quality, find markets at Teheran, Meshed, and Taurus, owing to their advantage in price Turkey, France, and Austria also send a certain quantity of printed and fancy piece goods.

Sugar occupies the second place among the articles imported into Persia. The value of loaf and candy sugar in the period 1901–2 was $5,136,055, and that of moist and powdered sugars $999,788. The markets of northern Persia are supplied exclusively by Russian refineries, while the southern markets rely on English agents from Mauritius and French refineries. The German, Belgian, and Egyptian refineries obtain a small proportion of the trade. Teheran is the principal sugar market and is supplied regularly by caravans from Enzéli and Resht.

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* Quoted in the London Board of Trade Journal.

† 1 kran=9.74 cents.

Woolen goods are an article of luxury in Persia. The principal market for woolens is found in the north, where the winter is much more rigorous than in the south. In 1901–2, the imports were valued at $1,524,159, as against $1,070,630 in 1900–1901. Austrian cloths are predominant at Teheran and Tauris. They are noted for their uniform shade, fine appearance, and relatively cheap price. The descriptions most in demand are the half wool and serges, tissues of even texture, and fancy tissues in black, gray, brown, and dark blue.

The Industrial Development of Persia.—The following is summarized from an article in a late issue of the Bulletin de Géographie Commerciale, Paris:

The direct route from the Orient to the West, which to-day is only a caravan track and to-morrow will be the principal trunk line of the great Indo-European Railway, will restore Persia to her privileged situation in the period when all commerce followed land routes, and she was the center of the exchanges of the then known world. This transformation will be facilitated by a soil which contains all the elements productive of wealth. Persia is of all explored countries perhaps the most abundantly supplied with minerals. In ancient Persia, agriculture flourished; at that epoch, as to-day, she owed her productiveness to irrigation. Europe is indebted for many of its best fruits to Persia—it is said the apple and the grape; certainly the peach and the apricot. She sent the first silkworm to France; from her plants come the most valuable of the vegetable dyes for woolens and textiles; and at the present day the use of aniline colors is strictly prohibited by the Government, to insure to her manufactures of rugs their superiority, and so preserve this source of riches.

The climate is excessively dry, and irrigation has reached a great perfection in this country. It may almost be said that nothing grows without artificial watering; but with it cotton, tobacco, the poppy, even sugar cane, are produced, while the harvests of cereals—rice, wheat, and maize—are abundant.

The inhabitants have long had a system of irrigation by means of subterranean channels, called kanats. These invisible conduits are sometimes 37 to 50 miles long, but much water is lost, and it is thought there would be an immense advantage in replacing them by pipes of cement or pottery; artesian wells may also be utilized to supply water.

The total value of the trade of Persia for the last fiscal year was 200,000,000 francs ($38,600,000); of this, 56 per cent represents the commerce with Russia, 24 per cent that with Great Britain, 8 per cent that with Turkey, 5½ per cent the commerce with France, 4 per cent that with China and Japan, 2½ per cent that with Austria, one-half of 1 per cent that with Germany, and 1½ per cent that with other countries.

The important trade in pearls amounted to $2,895,000. The imperial customs produced last year 1,700,000 tomans, representing $1,640,500. The new system of customs has not yet been established on the frontiers of Baluchistan and Kurdistan. The Franco-Persian Society has studied many enterprises which may be organized in Persia—the manufacture of bricks and pipes of earthenware; the making of explosives for mining; but most important, the exploitation of the coal deposits, already worked in a rudimentary fashion, together with the iron and copper ores; also the creation of provisional means of transportation, until Russia shall realize the option she has acquired of constructing, during ten years, all the railways in Persia. If the Persia of the future is again to assume the importance of the past, it will be the result of opening her land to the processes of modern industry, and especially of her situation as the natural thoroughfare between Europe and southern Asia. The railway which should unite England, France, Belgium, Germany, Russia, and all Europe with the banks of the Indus should pass by Rostoff, at the mouth of the Don, on the Sea of Azof, already connected with Baku by a railway, and run from there to Tiflis and Erivan. The prolongation to Teheran would not be long delayed. For reaching India afterward, different projects have been studied, but it is certain that Persia is the door from Europe to the Indies.

Commerce of Algeria in 1901.—A recent edition of the Revue du Commerce Extérieur, Paris, says:

According to the official statistics of the customs direction of Algeria, the commercial movement of the colony in 1901 was figured at $112,043,834. The importations were valued at $61,488,449, of which $48,261,320 represented merchandise of French origin and $13,227,129 that of foreign origin. The exportations amounted to $50,555,385. The foreign trade, both import and export, was distributed as follows:

Country.	Value.	Country.	Value.
England	$4,439,000	United States	$1,158,000
Tunis	3,474,000	Germany	965,000
Morocco	3,088,000	Other countries	4,632,000
Spain	1,544,000	Total	21,809,000
Belgium	1,351,000		
Italy	1,158,000		

The merchandise admitted free of duty—on condition of being reexported either to Morocco or to the Saharan oases—represented in 1901 a total value of $130,586, compared with $64,472 in 1900 and $42,046 in 1899.

Teak Wood in Siam.—According to a French consular report, the export of teak wood from Siam in 1901 was valued as follows:

In blocks	$1, 075, 725
In planks	334, 599
In thin boards	117, 124
Total	1, 527, 448

The extremely rich soil of the northern districts of Siam, the report says, has produced marvelous forests of teak; but much waste has taken place in their management, particularly on the part of the natives of the hills, who, in laying out their fields, recklessly burn great strips of these woods. In addition, the young trees are often hindered in their development by the stings of insects, a certain kind of wood fly, in particular, doing great damage. In consequence, many of the old trees are not suitable for building purposes, but are crooked, hollow, and stunted in their growth.

Trade of Seychelles Islands.—The London Board of Trade Journal, October 30, 1902, gives the value of the imports and exports (exclusive of specie) of these islands during each of the last five years, as follows:

Year.	Imports.	Exports.
1897	$305,213	$487,199
1898	288,049	414,196
1899	319,032	600,489
1900	317,815	335,716
1901	382,378	459,275

The trade was distributed according to countries in 1901 as follows:

Country.	Imports.	Exports.
United Kingdom	$129,835	$174,032
France	62,292	182,704
Mauritius	91,513	66,506
India	98,738	25,387
Other countries	....	11,636

The declared value of vanilla exported in 1901 was $359,249, as compared with $188,204 in 1900.

The Trans-Pacific Cable.—The Revue du Commerce Extérieur, Paris, November 8, 1902, says:

> The great English trans-Pacific cable from Vancouver to Queensland has just been completed. Yesterday, a telegram from Canada to Australia had to pass by Europe and the Suez Canal, undergoing a dozen transmissions in stations belonging to different countries; to-day, a message can be sent from Vancouver to Queensland with only three transmissions. In the future, one great telegraphic line, under English control, will encircle the globe, and, except at Madeira and St. Vincent, will touch only English territory.

Foreign Trade of Crete.—According to the Revue d'Orient, the foreign trade of the island of Crete in 1901 was valued at $4,668,973, of which $2,761,408 represented the value of the import trade and $1,907,565 that of the export trade. Among the chief articles of import may be mentioned: Flour, $507,890; tobacco in leaf, $175,234. The leading articles of export are: Oil, $553,166; carobs, $197,310; common soap, $180,335.

Vol. LXXI. No. 269.

HARVARD COLLEGE L
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CAMBRIDGE

CONSULAR REPORTS.

FEBRUARY, 1903.

COMMERCE, MANUFACTURES, ETC.

[FOR TABLE OF CONTENTS, SEE FIRST PAGE.]

DEPARTMENT OF STATE * UNITED STATES OF AMERICA *

WASHINGTON:
GOVERNMENT PRINTING OFFICE
1903.

CONTENTS.

Page.
List of Publications ix
I.—United States Enterprises in Mexico .... *Barlow* 169
II.—New Railroads in Mexico .... *Pagés* 175
III.—Financial Measures in Mexico .... *Clayton* 176
Pagés 176
IV.—New Import Duties in Mexico .... *Clayton* 177
V.—Cuban Presidential Message .... *Squiers* 178
VI.—Sanitary Condition of Habana .... *Sleeper* 188
VII.—Importation of Cattle into Cuba 192
VIII.—Engineer Titles in Cuba .... *Squiers* 194
IX.—Citizenship in Cuba 195
X.—Sugar Crop in Santiago de Cuba .... *Holaday* 197
XI.—Treaty of Peace in Colombia 198
XII.—Export Duties in Colombia .... *Hart* 200
XIII.—Opportunities for Capital in Honduras .... *Alger* 201
XIV.—New Wagon Road in Honduras 202
XV.—Rubber Vine in Honduras .... *Moe* 203
XVI.—Rubber Crop of Brazil: Gutta-Percha Industry .... *Kenneday* 204
XVII.—Agricultural Banking System in Bahia .... *Furniss* 206
XVIII.—Bids for Lighting Guayaquil 208
XIX.—Opportunities for Investment in Ecuador .... *Nast* 209
XX.—Navigation of the Rio de la Plata .... *Ruffin* 211
XXI.—American Capital in Canadian Bank Stock .... *Foster* 212
XXII.—Beet-Sugar Manufacture in Ontario .... *Gunsaulus* 213
XXIII.—Power Works for Vancouver 214
XXIV.—Sardines in British Columbia .... *Dudley* 215
XXV.—Export of Timber from British Columbia Prohibited 215
XXVI.—Government Iron Foundry in Japan .... *Lyon* 216
XXVII.—Progress of Japanese Railway Enterprise .... *Bellows* 217
XXVIII.—The Osaka Exhibition .... *Lyon* 210
XXIX.—Transit of Goods through Vladivostock .... *Greener* 220
XXX.—Traveling on the Siberian Railway .... *Lyon* 221
XXXI.—Railways of India .... *Patterson* 222
XXXII.—Opening for an American House in Bangkok .... *King* 227
XXXIII.—Failure of Australian Wheat Crop .... *Goding* 233

Page.

XXXIV.—Wool Trade in Australia .... *Baker* 234

XXXV.—Notes from New South Wales .... *Goding* 236

XXXVI.—Land Taxation in New Zealand .... *Dillingham* 237

XXXVII.—Dentists in Madagascar .... *Hunt* 241

XXXVIII.—Development of German Togoland .... *Winter* 242

XXXIX.—American Machinery in Syria .... } *Ravndal* 243

XL.—Arabic Typewriters .... } 244

XLI.—Commercial Conditions in Asiatic Turkey .... *Norton* 245

XLII.—Austrian Navy as an Aid to Commerce .... *Hurst* 254

XLIII.—Opening for Railway Material in Spain .... *Bartleman* 255

XLIV.—Estimates of European Sugar Production .... *Diederich* 265

XLV.—French Sardine Industry .... *Ridgely* 257

XLVI.—Industrial Exposition at Rheims .... *Prickitt* 250

XLVII.—Silk Industry of France .... *Covert* 260

XLVIII.—Glauchau Weaving School .... } *Creevey* 261

XLIX.—Weavers' Strike at Meerane, Germany .... } 262

L.—American Manufactures in Chemnitz .... } *Monaghan* 263

LI.—German Bicycle Export .... } 264

LII.—Coal-Tar-Color Industry of Germany .... *Guenther* 265

LIII.—Automatic Outside Brake for Trains .... *Frankenthal* 266

LIV.—German Briquette Machinery for America .... *Mason* 269

LV.—Income-Tax Statistics in Prussia .... *McKellip* 278

LVI.—Rhenish Lumber Market .... *Hughes* 278

LVII.—Import of Wood into Hamburg .... *Monaghan* 279

LVIII.—Lumber Trade in Belgium .... } *Mowrer* 280

LIX.—An American Brewery in Ghent .... } 280

LX.—The Ofoten Railroad and the Fish Trade of Norway, *Nelson* 281

LXI.—Delayed Orders for American Goods .... *Halstead* 281

LXII.—Advice to Exporters to Scotland .... } *Fleming* 283

LXIII.—Credits and General Trade Terms of British Industries .... } 286

LXIV.—British Duty on Grain .... *Halstead* 291

LXV.—General Review of Anglo-American Trade .... *Boyle* 296

LXVI.—Nottingham Lace Trade .... } *Mahin* 303

LXVII.—English Device to Prevent the Bulging of Bobbins.. } 303

LXVIII.—Notes (Expenses of the Siberian Railroad—American Trade in India—Quinine Auction at Batavia—Agricultural Industry in Japan—New Japanese Steamers—Oil Motors in India—Bounties for Siberian Butter—Ownership of Real Estate in Russia—Commercial Navigation Department in Russia—Fire Exhibition in London—Demand for American Superphosphates—American Yacht Wanted in France—Design for Monument to

Page.

the Postal Union at Berne—Heavier Rails for Prussian Railroads—Manufacture of Glass in Germany—American Petroleum for Greece—Coaling Station at the Seychelles—Bricks in South Africa—Light-Houses of Zanzibar—Tin in Queensland—Blockade of Venezuelan Ports—Banks in Salvador—Nicaraguan Customs Duties Payable in Gold—Import Duties in Santo Domingo—Reduction of Mexican Duty on Wheat—Embargo on United States Cattle in Canada—Mica Plant in Ottawa—Canadian Commercial Agent in South Africa—Inquiries for American Shotguns and Ammunition—Electricity for Purifying Drinking Water—Canal between Brussels and Charleroi, Belgium—Rock-Salt Mine in Belgium—Changes in Persian Custom-Houses—Completion of Pacific Cable—Scarcity of Wheat in Australia—Mineral Lake in Siberia—Duty on Foreign Wines at Vladivostock—Highways in the Caucasus—Inquiry for Furniture in Russia—Demand for Copper Sulphate in Greece—Knockdown Furniture for England—Consular Reports Transmitted to Other Departments)... 305

LXIX.—FOREIGN REPORTS AND PUBLICATIONS (Trade of San Thomé and Principe—Fair of Nizhni Novgorod—Reclamation of the Pontine Marshes—Foreign Trade of Hungary—The Formosa Sugar Industry)... 319

REPORTS BY COUNTRIES.

Page.

AFRICA:
- Development of German Togoland 242

AFRICA, SOUTH:
- Bricks in 311
- Canadian commercial agent in 315

ARGENTINE REPUBLIC:
- Navigation of the Rio de la Plata 211

AUSTRALIA:
- Completion of Pacific cable 316
- Failure of wheat crop of 233
- Notes from New South Wales 236
- Scarcity of wheat in 316
- Tin in Queensland 312
- Wool trade in 234

AUSTRIA:
- Navy of, as an aid to commerce 254

BELGIUM:
- An American brewery at Ghent 280
- Canal between Brussels and Charleroi 315
- Lumber trade in 280
- Rock-salt mine in Belgium 316

BRAZIL:
- Agricultural banking system in Bahia 206
- Gutta-percha industry of 205
- Rubber crop of 204

CANADA:
- American capital in bank stock of 212
- Beet-sugar manufacture in Ontario 213
- Embargo on United States cattle in 314
- Export of timber from British Columbia prohibited 215
- Mica plant in 314
- Power works for Vancouver 214
- Sardines in British Columbia 215

COLOMBIA:
- Export duties in 200
- Treaty of peace in 198

CUBA:
- Citizenship in 195
- Engineer titles in 194
- Importation of cattle into 192
- Presidential message 178
- Sanitary condition of Habana 188
- Sugar crop in Santiago de Cuba 197

DOMINICAN REPUBLIC:
- Import duties in 313

ECUADOR: Page.

Bids for lighting Guayaquil 208
Opportunities for investment in 209

ENGLAND:

Delayed orders for American goods 281
Device to prevent the bulging of bobbins 303
Fire exhibition in London 308
General review of Anglo-American trade 296
Knockdown furniture for 317
Nottingham lace trade 303

EUROPE:

Estimates of sugar production of 256

FRANCE:

American yacht wanted in 309
Demand for American superphosphates in 309
Industrial exposition at Rheims 259
Inquiries for American shotguns and ammunition 315
Sardine industry of 257
Silk industry of 260

GERMANY:

American manufactures in Chemnitz 263
Bicycle export of 264
Briquette machinery for America 269
Coal-tar-color industry of 265
Electricity for purifying drinking water 315
Glauchau weaving school 261
Heavier rails for Persian railroads 310
Import of wood into Hamburg 279
Income-tax statistics in Prussia 278
Manufacture of glass in 310
Rhenish lumber market 278
Weavers' strike at Meerane 262

GREAT BRITAIN:

Advice to exporters to Scotland 283
Credits and general trade terms of industries of 286
Delayed orders for American goods 281
Duty on grain in 291
English device to prevent the bulging of bobbins 303
Fire exhibition in London 308
General review of Anglo-American trade 296
Knockdown furniture for 317
Nottingham lace trade 303

GREECE:

American petroleum for 311
Demand for copper sulphate in 317

HONDURAS:

New wagon road in 202
Opportunities for capital in 201
Rubber vine in 203

INDIA:

American trade in 305
Oil motors in 307
Railways of 223

JAPAN: Page.
  Agricultural industry in ... 306
  Government iron foundry in ... 260
  New steamers in ... 307
  Progress of railway enterprise in ... 217
  The Osaka exhibition ... 219
JAVA:
  Quinine auction at Batavia ... 306
MADAGASCAR:
  Dentists in ... 241
MEXICO:
  Financial measures in ... 176
  New import duties in ... 177
  New railroads in ... 175
  Reduction of duty on wheat ... 314
  United States enterprises in ... 169
NEW SOUTH WALES:
  Notes from ... 236
NEW ZEALAND:
  Land taxation in ... 237
NICARAGUA:
  Customs duties payable in gold in ... 313
NORWAY:
  The fish trade of ... 281
  The Ofoten Railroad ... 281
PARAGUAY:
  Navigation of the Rio de la Plata ... 211
PERSIA:
  Changes in custom-houses of ... 316
PRUSSIA:
  Heavier rails for railroads of ... 210
  Income-tax statistics in ... 278
QUEENSLAND:
  Tin in ... 212
RUSSIA:
  Commercial navigation department in ... 308
  Highways in the Caucasus ... 317
  Inquiry for furniture in ... 317
  Ownership of real estate in ... 308
SALVADOR:
  Banks in ... 313
SCOTLAND:
  Advice to exporters to ... 283
SEYCHELLES ISLANDS:
  Coaling station at the ... 311
SIAM:
  Opening for an American house in Bangkok ... 227
SIBERIA:
  Bounties for butter in ... 308
  Duty on foreign wines at Vladivostock ... 317
  Expenses of railroad of ... 305
  Mineral lake in ... 316
  Transit of goods through Vladivostock ... 220
  Traveling on the railway of ... 221

SPAIN: Page.
Opening for railway material in 255
SWITZERLAND:
Automatic outside brake for trains 266
Design for monument to the Postal Union at Berne 310
SYRIA:
American machinery in 243
TOGOLAND, GERMAN:
Development of 242
TURKEY IN ASIA:
American machinery in Syria 243
Arabic typewriters in Egypt 244
Commercial conditions in 248
UNITED STATES:
General review of Anglo-American trade 296
URUGUAY:
Navigation of the Rio de la Plata 211
VENEZUELA:
Blockade of ports of 312
ZANZIBAR:
Light-houses of 312

Full directions for binding the Consular Reports are given in No. 131, page 663.

PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—REVIEW OF WORLD'S COMMERCE, being a summary of the annual reports contained in Commercial Relations.

III.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

IV.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

V.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

VI.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880–81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885–86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications are exhausted, and the Department is therefore unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled SPECIAL CONSULAR REPORTS. There are now the following SPECIAL CONSULAR REPORTS:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Files in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Stave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

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* Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Stave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1901).—Part I. Gas and Oil Engines in Foreign Countries. Part II. Silver and Plated Ware in Foreign Countries.

Vol. 24 (1902).—Creameries in Foreign Countries.

Vol. 25 (1902).—Stored Goods as Collateral for Loans.

Vol. 26 (1903).—Briquettes as Fuel in Foreign Countries.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Carpet Manufacture, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, Heating and Cooking Stoves, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Money and Prices, Paper in Foreign Countries, Port Regulations, Refrigerators and Food Preservation; Sericulture, etc.; Silver and Plated Ware; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to $20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to April 1, 1903, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1898, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1875–1877, 1879–1882, 1884–1887, 1895, 1897, and 1899 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—*Countries with fixed currencies.*

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S. gold.	Coins.
Argentine Republic	Gold and silver	Peso	$0.96,5	Gold—argentine ($4.82,4) and ½ argentine; silver—peso and divisions.
Austria-Hungary*	Gold	Crown	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium	Gold and silver	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
British North America (except Newfoundland).	do	Dollar	1.00	
British Honduras	do	do	1.00	
Chile	do	Peso	.36,5	Gold—escudo ($1.25), doubloon ($3.65), and condor ($7.30); silver—peso and divisions.
Costa Rica	do	Colon	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centisimos.
Cuba	Gold and silver	Peso	.92,6	Gold—doubloon ($5.01,7); silver—peso (60 cents).
Denmark	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Ecuador †	do	Sucre	.48,7	Gold—10 sucres ($4.8665); silver—sucre and divisions.
Egypt	do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland	do	Mark	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark	.23,8	Gold—5, 10, and 20 marks.
Great Britain	do	Pound sterling	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver	Drachma	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	do	Gourde	.96,5	Silver—gourde.
India ‡	Gold	Rupee	.32,4	Gold—sovereign ($4.8665); silver—rupee and divisions.
Italy	Gold and silver	Lira	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §	Gold	Yen	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia	do	Dollar	1.00	
Netherlands	Gold and silver	Florin	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Newfoundland	Gold	Dollar	1.01,4	Gold—$2 ($2.02,7).
Peru ‖	do	Sol	.48,7	Gold—libra ($4.8665); silver—sol and divisions.
Portugal	do	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ¶	do	Ruble	.51,5	Gold—imperial ($7.718) and ½ imperial ($3.80); silver—¼, ½, and 1 ruble.
Spain	Gold and silver	Peseta	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay	do	Peso	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela	Gold and silver	Bolivar	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

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* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See CONSULAR REPORTS No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see CONSULAR REPORTS No. 238, p. 359.

§ Gold standard adopted October 1, 1897. (See CONSULAR REPORTS No. 201, p. 259.)

‖ Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896–97, p. 254.

B.—*Countries with fluctuating currencies, 1874–1898.*

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1--					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver	Florin	$0.47,6	$0.45,3	$0.40,1	$0.34,5	$0.33,6	$0.42
Bolivia	do	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America	do	Peso	.96,5	.91,8	....	.69,9	.68	.85
China	do	Haikwan tael.	1.61	....	....	....	....	....
Colombia	do	Peso	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador	do	do	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt †	Gold	Pound (100 piasters).	....	4.97,4	4.90	4.94,3	....	....
India	Silver	Rupee	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan	Gold	Yen	.99,7	.99,7	....	.99,7	.99,7	.99,7
	Silver		....	....	.87,6	.75,3	.73,4	.91,7
Mexico	do	Dollar	1.04,75	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡	Gold and Silver.	Florin	.40,5	.38,5	....	....	....	....
Peru	Silver	Sol	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia	do	Ruble	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1896.	1898.
Austria-Hungary*.	Silver	Florin	$0.38,1	$0.34,1	....	....	....	....
Bolivia	do	Boliviano	.77,1	.69,1	$0.61,3	$0.51,6	$0.49,1	$0.42,4
Central America	do	Peso	.77,1	.69,1	.61,3	.51,6	.40,1	.41,4
Colombia	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Ecuador	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
India	do	Rupee	.36,6	.32,8	.29,2	.24,5	.23,3	.20,1
Japan§	do	Yen	.83,1	.74,5	.66,1	.55,6	.52,9	....
Mexico	do	Dollar	.83,7	.75	.66,6	.56	.53,3	.46
Peru	do	Sol	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Russia§	do	Ruble	.61,7	.55,3	.49,1	.41,3	.39,3	....
Tripoli	do	Mahbub of 20 piasters.	.69,5	.62.3	.55,3	.46,5	.44,3	....

* See footnote to Austria-Hungary under Table A.

† The Egyptian pound became fixed in value at $4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

§ See footnote, table of fixed currencies.

C.—*Quarterly valuations of fluctuating currencies.*

Countries.	Monetary unit.	1900.				1901.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.	$0.42,7	$0.43,6	$0.43,8	$0.45,1	$0.46,8	$0.45,1	$0.43,6	$0.42,8
Central America.	Silver peso	.42,7	.43,6	.43,8	.45,1	.46,5	.45,1	.43,6	.42,8
China	Amoy tael	.69,1	.70,5	.70,9	.72,9	.75,7	.72,9	.70,5	.69,1
	Canton tael	.68,9	.70,3	.70,7	.72,7	.75,5	.72,7	.70,3	.68,9
	Chefoo tael	.66,1	.67,4	.67,8	.69,7	.72,4	.69,7	.67,4	.66,1
	Chinkiang tael	.67,5	.68,8	.69,3	.71,2	.74	.71,2	.68,8	.67,5
	Fuchau tael	.64	.65,2	.65,6	.67,4	.70,1	.67,5	.65,2	.64
	Haikwan tael	.70,3	.71,7	.72,1	.74,2	.77,1	.74,2	.71,7	.70,4
	Hankau tael	.64,7	.65,9	.66,3	.68,2	.70,9	.68,2	.65,9	.64,7
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.66,5	.67,7	.68,2	.70,1	.72,8	.70,1	.67,8	.66,5
	Niuchwang tael.	.64,8	.66,1	.66,5	.68,4	.71	.68,4	.66,1	.64,8
	Shanghai tael	.63,1	.64,4	.64,8	.66,6	.69,2	.66,6	.64,4	.63,2
	Swatow tael	.63,9	.65,1	.65,5	.67,4	.70	.67,4	.65,1	.63,9
	Takao tael	.69,6	.70,9	.71,4	.73,4	.76,2	.73,4	.70,9	.69,6
	Tientsin tael	.67	.68,3	.68,7	.70,7	.73,4	.70,7	.68,3	.67
Colombia	Silver peso	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1	.43,6	.42,8
Ecuador †	do	....	....	....	....	....	....	....	....
India	Silver rupee‡	.20,3	.20,7	.20,8	....	....	....	....	....
Mexico	Silver dollar	.46,4	.47,3	.47,6	.49	.50,9	.49	.49	.46,4
Persia	Silver kran	.07,9	.08	.08,1	.08,3	.08,6	.08,3	.08,3	.07,9
Peru †	Silver sol	.42,7	.43,6	.43,8	.48,7	....	....	....	....

Countries.	Monetary unit.	1902.				1903.
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.
Bolivia	Silver boliviano.	$0.41,3	$0.40,3	$0.38,2	$0.38,4	$0.36,1
Central America	Silver peso	.41,3	.40,3	.38,2	.38,4	.36,1
China	Amoy tael	.66,9	.65,1	.61,8	.62	.58,4
	Canton tael	.66,7	.64,9	.61,7	.61,9	.58,2
	Chefoo tael	.63,9	.62,3	.59,1	.59,3	.55,8
	Chinkiang tael	.65,3	.63,6	.60,4	.60,6	.57
	Fuchau tael	.61,8	.60,2	.57,2	.57,4	.54
	Haikwan tael	.68	.66,3	.62,9	.63,1	.59,4
	Hankau tael	.62,6	.60,9	.57,9	.58	.54,6
	Hongkong tael	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.64,3	.62,6	.59,5	.59,6	.56,1
	Niuchwang tael.	.62,7	.61,1	.58	.58,2	.53,3
	Shanghai tael	.61,1	.59,5	.56,5	.56,7	.53,9
	Swatow tael	.61,8	.60,2	.57,1	.57,3	.58,8
	Takao tael	.67,3	.65,5	.62,2	.62,4	.56,6
	Tientsin tael	.64,8	.63,1	.59,9	.60,1	.60,1
Colombia	Silver peso	.41,3	.40,3	.38,2	.38,4	.36,1
Mexico	Silver dollar	.44,9	.43,7	.41,5	.41,7	.39,2
Persia	Silver kran	.07,6	.07,4	.07	.07,1	.06,6

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* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† See footnote, table of fixed currencies.

‡ The sovereign is the standard coin of India, but the rupee is the money of account. See also table of fixed currencies.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal	4.422 gallons.
Ardeb	Egypt	7.6907 bushels.
Are	Metric	0.02471 acre.
Arobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1.12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	11.4 gallons.
Do	Spain (raisins)	100 pounds.
Berkovets	Russia	361.12 pounds.
Bongkal	India	832 grains.
Bouw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	529 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1.333⅓ (1⅓) pounds.
Do*	Japan	1.31 pounds.
Do	Java, Siam, and Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110.24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.46 pounds.
Chetvert	Russia	5.7748 bushels.
Chih	China	14 inches.

*More frequently called "kin." Among merchants in the treaty ports it equals 1.33⅓ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan	Sarawak	3,098 pounds.
Do	Siam (Koyan)	2,667 pounds.
Cuadra	Argentine Republic	4.2 acres.
Do	Paraguay	78.9 yards.
Do	Paraguay (square)	8.077 square feet.
Do	Uruguay	Nearly 2 acres.
Cubic meter	Metric	35.3 cubic feet.
Cwt. (hundredweight)	British	112 pounds.
Dessiatine	Russia	2.6997 acres.
Do	Spain	1.599 bushels.
Drachme	Greece	Half ounce.
Egyptian weights and measures	(*See* CONSULAR REPORTS No. 144.)	
Fanega (dry)	Central America	1.5745 bushels.
Do	Chile	2.575 bushels.
Do	Cuba	1.599 bushels.
Do	Mexico	1.54728 bushels.
Do	Morocco	Strike fanega, 70 pounds; full fanega, 118 pounds.
Do	Uruguay (double)	7.776 bushels.
Do	Uruguay (single)	3.888 bushels.
Do	Venezuela	1.599 bushels.
Fanega (liquid)	Spain	16 gallons.
Feddan	Egypt	1.03 acres.
Frail (raisins)	Spain	50 pounds.
Frasco	Argentine Republic	2.5096 quarts.
Do	Mexico	2.5 quarts.
Frasila	Zanzibar	35 pounds.
Fuder	Luxemburg	264.17 gallons.
Funt	Russia	0 9028 pound.
Garnice	Russian Poland	0.88 gallon.
Gram	Metric	15.432 grains.
Hectare	do	2.471 acres.
Hectoliter:		
Dry	do	2.838 bushels.
Liquid	do	26.417 gallons
Joch	Austria-Hungary	1.422 acres.
Ken	Japan	6 feet.
Kilogram (kilo)	Metric	2.2046 pounds.
Kilometer	do	0.621376 mile.
Klafter	Russia	216 cubic feet.
Koku	Japan	4.9629 bushels.
Korree	Russia	3.5 bushels.
Kwan	Japan	8.28 pounds.
Last	Belgium and Holland	85.134 bushels.
Do	England (dry malt)	82.52 bushels.
Do	Germany	2 metric tons (4,480 pounds).
Do	Prussia	112.29 bushels.
Do	Russian Poland	11⅓ bushels.
Do	Spain (salt)	4,760 pounds.
League (land)	Paraguay	4,633 acres.
Li	China	2,115 feet.
Libra (pound)	Argentine Republic	1.0127 pounds.
Do	Central America	1.043 pounds.
Do	Chile	1.014 pounds.
Do	Cuba	1.0161 pounds.
Do	Mexico	1.01465 pounds.
Do	Peru	1.0143 pounds.
Do	Portugal	1.011 pounds.
Do	Spain	1.0144 pounds.
Do	Uruguay	1.0143 pounds.
Do	Venezuela	1.0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter	Metric	1.0567 quarts.
Livre (pound)	Greece	1.1 pounds.
Do	Guiana	1.0791 pounds.
Load	England (timber)	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 superficial feet.
Manzana	Costa Rica	1¾ acres.
Do	Nicaragua and Salvador	1.727 acres.
Marc	Bolivia	0.507 pound.
Maund	India	82 2/7 pounds.
Meter	Metric	39.37 inches.
Mil	Denmark	4.68 miles.
Do	Denmark (geographical)	4.61 miles.
Milla	Nicaragua and Honduras	1.1493 miles.
Morgen	Prussia	0.63 acre.
Oke	Egypt	2.7225 pounds.
Do	Greece	2.84 pounds.
Do	Hungary	3.0817 pounds.
Do	Turkey	2.82838 pounds.
Do	Hungary and Wallachia	2.5 pints.
Pic	Egypt	21¼ inches.
Picul	Borneo and Celebes	135.64 pounds.
Do	China, Japan, and Sumatra	133⅓ pounds.
Do	Java	135.1 pounds.
Do	Philippine Islands	137.9 pounds.
Pie	Argentine Republic	0.9478 foot.
Do	Spain	0.91407 foot.
Pik	Turkey	27.9 inches.
Pood	Russia	36.112 pounds.
Pund (pound)	Denmark and Sweden	1.102 pounds.
Quarter	Great Britain	8.252 bushels.
Do	London (coal)	36 bushels.
Quintal	Argentine Republic	101.42 pounds.
Do	Brazil	130.06 pounds.
Do	Castile,* Chile, Mexico, and Peru	101.41 pounds.
Do	Greece	123.2 pounds.
Do	Newfoundland (fish)	112 pounds.
Do	Paraguay	100 pounds.
Do	Syria	125 pounds.
Do	Metric	220.46 pounds.
Rottle	Palestine	6 pounds.
Do	Syria	5¼ pounds.
Sagene	Russia	7 feet.
Salm	Malta	490 pounds.
Se	Japan	0.02451 acres.
Seer	India	1 pound 13 ounces.
Shaku	Japan	11.9305 inches.
Sho	do	1.6 quarts.
Standard (St. Petersburg)	Lumber measure	165 cubic feet.
Stone	British	14 pounds.
Suerte	Uruguay	2,700 cuadras (see cuadra).
Sun	Japan	1.193 inches.
Tael	Cochin China	590.75 grains (troy).
Tan	Japan	0.25 acre.
To	do	2 pecks.
Ton	Space measure	40 cubic feet.
Tonde (cereals)	Denmark	3.94783 bushels.
Tondeland	do	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo	Japan	6 feet square.
Tsun	China	1.41 inches.
Tunna	Sweden	4.5 bushels.
Tunnland	Sweden	1.22 acres.
Vara	Argentine Republic	34.1208 inches.
Do	Central America	32.87 inches.
Do	Chile and Peru	33.367 inches.
Do	Cuba	33.384 inches.
Do	Curaçao	33.375 inches.
Do	Mexico	33 inches.
Do	Paraguay	34 inches.
Do	Spain	0.914117 yard.
Do	Venezuela	33.384 inches.
Vedro	Russia	2.707 gallons.
Vergees	Isle of Jersey	71.1 square rods.
Verst	Russia	0.663 mile.
Vlocka	Russian Poland	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6418 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.
Decameter (10 meters) equals 393.7 inches.
Hectometer (100 meters) equals 328 feet 1 inch.
Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).
Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.
Are (100 square meters) equals 119.6 square yards.
Hectare (10,000 square meters) equals 2.471 acres.

CONSULAR REPORTS.

COMMERCE, MANUFACTURES, ETC.

Vol. LXXI. FEBRUARY, 1903. No. 269.

UNITED STATES ENTERPRISES IN MEXICO.

The following extracts are from a report by Consul-General A. D. Barlow, of Mexico City, which will appear in full in Commercial Relations, 1902:

In round figures, $500,000,000 gold is the amount of American capital invested in Mexico by 1,117 American companies, firms, and individuals.

This amount has practically all been invested in the past quarter of a century, and about one-half of it has been invested within the past five years.

The impetus given to Mexico's industries by this enormous augmentation of the nation's working capital accounts in no small degree for the great industrial progress of the Republic during the past twenty-five years. With Mexico buying 58 per cent of all her imports from the United States and selling 80 per cent of all her exports to the United States, and with this enormous investment of American capital in Mexico, the commercial bond between the sister Republics is one that can hardly be broken. It is one, too, that is constantly growing in strength. The flow of American capital into this Republic has apparently only begun. Each year Mexico buys more from and sells more to the United States. The community of interest is growing daily, and certainly makes for harmony between the two nations.

RAILROADS.

More American capital is invested in the railroads of Mexico than in any other single line—about 70 per cent of the total. In this line American capital dominates. All of the important railroads in Mexico (except the Interoceanic, which runs between this city and Veracruz and was recently acquired by the Mexican Government; the Mexican Railway, which also runs between this city and Veracruz and is controlled by English capital; and the National Tehuantepec Railway, which is being reconstructed by S. Pearson & Son, of London, under contract with the Mexican Government) are owned by American capital. It must not be forgotten that some of the stock in these railroads is held by others than Americans, but this is comparatively small, and there is no way of ascertaining exactly how much is so held. On the other hand, some of the stock of the Mexican Railway is held by American capital, and no account of this has been taken, for, as in the other case, it is impossible to ascertain exactly how much. It should also be mentioned that the railroads necessarily operate under Mexican charters or concessions, and in that sense they are Mexican enterprises; but the capital invested is American capital, and for this report all American capital invested in Mexico, whether it be chartered under the laws of Mexico or one of the States of the United States, is considered as American capital.

A large amount of American capital has been invested in the railroads of this country within the past two years, the Mexican National Railroad having passed from British to American control and the Mexican Central, always American, having acquired some short lines which were not owned by American capital. Since the construction of the Mexican Central by Americans, some twenty years ago, United States capital has always been the strongest factor in Mexican railroads, and at present it constitutes about 80 per cent of the total capital invested in railroads in this country. In this, more than anything else, American capital has contributed to the development of Mexico. It can be truthfully said that Mexico owes most of her recent material progress to the building of railroads through her territory. American capital has followed the steel rail, and so has other foreign capital and native capital as well. Nothing makes for the development of a country so much as railroads. Mexico and the United States are bound together figuratively and literally by bands of steel.

The Mexican Central Railroad represents the largest single American interest in Mexico. The amount—$158,999,979.45—given as the capital employed represents what has actually been paid out up to the present time for the construction and equipment of the road. The Mexican National is the next strongest, with a capital invested of $107,350,000. This entire amount has not actually been spent on the construction and equipment of the road up to date, but it will be within the next year. When the road changed from British to American control, its capital was largely increased for the purpose of changing its gauge from narrow to standard. This change means a large expenditure of money, and is now well under way. It is impossible to ascertain just how much has been expended up to the present date, and the amount given as the capital actually invested includes the amount that is to be expended in the immediate future on construction and equipment.

MINING.

Next in importance to the railroads, from the standpoint of American capital invested, is the mining industry. Since the time of Cortes, mining has been the principal source of Mexico's wealth. The amount invested by Americans in mining in Mexico may be stated, in round figures, at $80,000,000.

This is a comparatively small percentage of the total amount of capital invested in Mexican mining properties. Yet a large amount of this $80,000,000 is invested in up-to-date mining machinery, which is competently handled, and Mexico's mineral wealth has been greatly increased by this American investment. Mines that were given up years ago, and mines that could not be worked at all on account of the low grade of the ores, can now be profitably worked by the newer methods, for which Mexico is mostly indebted to Americans. The increased output of Mexican mines, as well as the opening up of new mining districts, is largely due to Americans, both through the improved mining methods and through the development of the country by railroads built by our capital. Thus, taken on the whole, American capital is a stronger factor in Mexico's principal industry than the amount invested indicates on the surface.

Sonora has the largest amount of American capital invested in any one State of Mexico—$27,800,000. Chihuahua comes next, with $21,000,000. The State of Durango ranks third in importance with regard to the amount of American capital invested in its mining industry, with $6,500,000. Coahuila is next, with an even $6,000,000 of American capital invested.

HACIENDAS, RANCHES, AND FARMS.

Agriculture comes after mining in the amount of American capital invested, with $28,000,000. Estimates under this heading have been most difficult to make. It is certain that many of the so-called tropical agricultural companies have greatly exaggerated the amounts of capital actually invested by them. Many of them have given their authorized capitalization, running up into millions, as the amount of capital actually invested, when really the amount of capital paid in is a very small percentage of the authorized capitalization and the amount invested is still less, perhaps a few thousand dollars.

The first cost of virgin land in the tropics of Mexico is very small—say, 50 cents to $1 per acre as a liberal average. Development work is expensive, and some of the older companies have no doubt spent considerable sums in improving their properties; but in a general way, the "monthly payment" companies have not invested much in Mexico, however much the small investors may have paid to the promoters for the privilege of holding stock in their companies. Legitimate investments in Mexico may be expected to pay reasonable returns—perhaps a larger percentage of profit than the same amount of money could earn in the United States—but promises of 200 to 500 per cent profit in five or ten years can be set down as "fakes" pure and simple. Many wealthy Americans and other foreigners, as well as Mexicans, live in Mexico and have their money invested here, being generally well satisfied with 10 to 15 per cent profit. The whole Isthmus of Tehuantepec and possibly the entire tropical section of Mexico could be bought by capitalists residing in this city, and if there were any sure 200 per cent investments to be made in that region they would certainly be taken up by persons on the ground who are thoroughly familiar with the conditions there. The speculative bubble will be pricked one of these days, and the small investors in the United States will have a lot of prettily engraved shares of stock and some more or less valuable experience to show for the money they have invested. This does Mexico and Americans no good. I am in receipt of an average of ten or more letters each week from persons of small means in the United States, who desire to invest in tropical agricultural companies operating or claiming to operate in Mexico, asking for information and advice concerning such companies and investments. One reply covers the whole ground. That is, first, that rubber culture in Mexico is as yet purely in the experimental stage, and no reliable statistics or information can be given concerning its probability of success. Promises of dividends by companies who propose to engage in the rubber-growing business are purely speculative and theoretical. Other American agricultural companies who propose to raise various tropical products may or may not be successful. Some are successful, but they are comparatively few. It is safe to advise any person not to invest in any enterprise in Mexico without first visiting the country personally and thoroughly investigating the proposition and the local conditions. Persons who have not sufficient capital to do this had better not invest here. A small investment made blindly by a school teacher or minister or laboring man in the United States in a foreign enterprise may be well made, but in nine cases out of ten the money could be invested to better advantage in the United States.

Another erroneous idea, which seems to be quite common among

Americans resident in the United States, is that Mexico is a good place for persons of small means to come to to engage in agricultural or other pursuits. In most cases it is not. As in the case of investments on a small scale in enterprises in Mexico, no person should decide to come here to live and engage in business without first personally visiting the country and thoroughly investigating the local conditions.

While not much can be said in favor of the tropical agricultural companies, there are a great many legitimate agricultural enterprises in Mexico operated by American capital—some very successfully—and there is doubtless a large field here for conservative investments of American capital in this line.

Since it is impossible to estimate, with any degree of accuracy, the amount of American capital invested in agricultural enterprises in many of the States, no comparisons by States can be made.

MANUFACTORIES AND FOUNDRIES.

Next to railroads, mining, and agriculture, the largest American interest in Mexico is in manufacturing. This is an industry in which American capital is only beginning to assume importance, and one in which it is likely to figure very prominently in the next few years. As a whole, the industry is as yet in its infancy here, but with a high protective tariff it is a thriving infant, well nourished by liberal encouragement on the part of the Mexican Government. A number of important manufacturing enterprises in which American capital is heavily interested are just starting or have plants in course of construction, as the large iron and steel works at Monterey. In the case of manufacturing enterprises, it has been possible to estimate very closely the amount of capital actually employed, as there is necessarily tangible property upon which to base an estimate.

Sinaloa, a State without a railroad and one rarely heard of in the United States, leads the list of Mexican States in regard to the amount of American capital invested in manufacturing enterprises. Most of this is engaged in a few large sugar refineries. The Federal District comes next, with a variety of large and small manufacturing enterprises. Nuevo Leon, whose capital, Monterey, is one of the principal manufacturing centers in the Republic, comes next, with $2,500,000 of American capital invested in her enterprises.

BANKS AND TRUST COMPANIES.

American capital is beginning to assume importance in the banking of Mexico, and this interest is one that is growing rapidly. American methods, which were unknown here a few years ago, have revolutionized banking in this country and placed it on a business rather than a social basis. As yet, the total amount of American capital invested in banking in this country—naturally, mainly in Mexico City—is relatively small, but it is a powerful leaven in the loaf, and threatens to become the body of it in the next few years. American capital has recently acquired considerable interest in three of the leading banks of Mexico, namely, the London Bank, the Central Bank, and the International and Mortgage Bank. Two trust companies, in which American capital is mainly interested, have recently started in this city. The two small American banks which are operating here have been thus far very successful, and others are now being started in various cities of the Republic where there are large American interests.

OTHER ENTERPRISES.

Next after banks, in the order of the amount of American capital invested, come assay offices and chemical laboratories, ore buyers, ore testers, smelters, and refiners, all closely allied to the mining interest. All of Mexico's large smelters are operated by American capital.

Americans have of late been building many electric light and power plants, gas plants, water-works plants, telephone systems, and similar plants. The Mexican Telephone Company, operating the telephone system of this city, and the Mexican Telegraph Company, with a line to Veracruz from this city and a cable from Veracruz to Galveston, are the largest enterprises of this sort. In addition to building plants for their own operation, Americans are building most of the telegraph and telephone lines and laying most of the cables for native and other foreign companies. American material is being used principally in the construction of electric street-car lines in this and other cities of the Republic.

American contractors, while they do not show a vast amount of invested capital—this being limited to the material needed for current operations—are another strong factor in Mexico's progress. Many of Mexico's cities have recently undertaken or are now planning extensive municipal improvements, and in all of these the American contractor is a conspicuous figure. A large share of the construction work of all kinds, both public and private, now going on throughout the length and breadth of this Republic is being done by Americans and American capital.

American real estate and building and loan companies are just getting well started here, and they are rapidly changing the old methods of transacting this sort of business. Mexicans, as well as Americans resident here, like the system of buying homes on the installment plan, and these companies are likely to be successful in their undertakings.

RECAPITULATION BY STATES.

The Federal District, which practically means the City of Mexico, is credited with $320,800,000 of American capital invested. It should be understood that all of this capital is not invested in the City of Mexico. Of this amount, $281,800,000 is credited to the railways having their main offices in this city. These railroads extend in all parts of the Republic, but it is impossible to credit to each State and Territory its proportionate share of the capital so invested. Another large item is that of mining interests, which have their main offices in this city, from which are operated their various properties throughout the Republic. The same is true of other large items.

The State showing the largest amount of American capital invested is Coahuila, with $48,700,000; but of this amount $37,800,000 is credited to the Mexican International Railroad, which is not confined to the limits of that State. The next State in the order of American capital invested is Sonora, with $37,500,000, of which $27,800,000 is claimed to be interested in mining enterprises. It is known that some of the amounts claimed by or for certain mining companies operating in that State are greatly exaggerated, and therefore the amount of American capital invested in Sonora is estimated to be very little in excess of the amount credited to the State of Chihuahua ($31,900,000). Of the total amount credited to Chihuahua, $21,300,000 is in mining enterprises.

Oaxaca comes next, with $13,600,000, but this amount includes some doubtful tropical agricultural companies and would be considerably reduced if an accurate estimate could be made. Nuevo Leon, with $11,400,000, therefore ranks next to Chihuahua with relation to the amount of American capital actually invested.

NEW RAILROADS IN MEXICO.

The firm of S. Pearson & Son, Limited, the contractors for the harbor works of the port and drainage works of this city, and for the reconstruction works on the Tehuantepec Railroad, in company with Mr. Pedro M. Armendariz, of Mexico City, recently obtained a concession from the Mexican Government for the construction and operation of a railroad. This is to start from a station known as Ojapa, on the Northern Railroad of Tehuantepec, and run to a point opposite Alvarado, the terminal station of the railroad from Veracruz, or some other convenient point on the right bank of the Papaloapam River, touching at the towns of Acayucan, San Andres Tuxtla, and Alonso Lazaro. The concessionnaries are authorized to construct and operate a branch line from the main road, starting at Alonso

Lazaro and connecting with the Veracruz and Alvarado road at Alvarado. Within the first year, 12 miles must be completed, and every year thereafter not less than 12 miles additional; the whole line must be completed and in operation before the expiration of ten years from date of concession.

Another concession was granted to Mr. Algeron Joy, of Mexico City, or to a company he may organize, for the construction of a railroad between the State of Oaxaca and Veracruz, starting from the southern side of the Papaloapam River, at a point opposite the town of Tuxtepec, in the State of Oaxaca, and making connection with the Veracruz and Pacific Railway. Three miles must be completed within the first year and the balance within two years from the date of the concession. The motive power may be any that is approved by the Government, including animal power. In no case shall foreign merchandise enjoy any freight discrimination which is not granted similar Mexican goods. The concessionary may charge other railroads which are making use of the roadbed a maximum of 60 per cent of their regular transportation rates on all freights so hauled. All construction material for road and telegraphic equipment may be imported free of customs duty. The amount of $3,000 in bonds of the consolidated public debt is to be deposited in the National Treasury as a guaranty for the fulfillment of the contract, and the principal office of the concessionary is to be in Mexico City.

J. G. Pagés,
Vice-Consul.

Veracruz, *December 6, 1902.*

FINANCIAL MEASURES IN MEXICO.

The Department has received from Minister Clayton, of Mexico, and from Vice-Consul J. G. Pagés, of Veracruz, under date of November 17 and 14, 1902, translation of a financial measure about to be adopted by the Mexican Government in view of the decline of silver, as follows:

Article 1. The Executive of the Republic of Mexico is authorized—

(1) To establish a basis for regulating the import duties in such a manner that, without changing the present customs tariff, the proceeds of such duties collected shall vary in accordance with the fluctuations in foreign exchange when exchange is quoted above 220 per cent, or its equivalent, 22½ pence per peso, Mexican currency, which was the value adopted in the current budget of expenditure, and within the limits that, in the opinion of the Executive, are indispensable for covering the increased expenditures consequent upon the high rate of exchange, and remittance of funds for payments of interest on national bonds in foreign money.

(2) To abolish the internal-revenue stamp tax of 7 per cent on the import duties and the 2 per cent on port charges, authorized by the laws of November 12, 1896, and November 30, 1898.

(3) To reduce the amount of federal contributions from 30 per cent to 25 per cent.

(4) To increase the apportionments for the maintenance of the civil and military services, as provided by the present estimates and laws. It is, however, stipulated that the increase of expenditures resulting from the new apportionment shall not amount to more than $500,000 Mexican currency per year. The Executive is empowered to make this change by simply issuing a decree to that effect.

(5) To change the present system of imposing the internal-revenue tax of 3 per cent and the charges on coining of gold, so that the tax imposed on this metal may be proportionate to its real value, as is the case with silver.

(6) To create an internal-revenue tax on crude petroleum for refining purposes, or on the refined petroleum; provided, that in reducing the duty on the crude petroleum, in order to facilitate its importation in large quantities for purposes of fuel, the Executive should consider it necessary to adopt this means in order not to curtail the amount of the duties which the treasury receives for petroleum imported for the purposes of refining.

NEW IMPORT DUTIES IN MEXICO.*

Under date of December 5, 1902, Minister Clayton sends from Mexico City a clipping from the Mexican Herald, containing a translation of a recent decree, as follows:

Article 1. On and after the 1st day of January, 1903, the laws of November 30, 1888, and May 12, 1896, creating, respectively, the 2 per cent port works tax and the 7 per cent stamp tax on import duties will be abolished.

Art. 2. On and after the same date of January 1, 1903, the import duties on foreign merchandise brought into the Republic will continue to be adjusted in accordance with the rates set forth in the import schedule, but the sum that would be payable according to that adjustment will be reduced by 50 per cent, and the amount thus found will be multiplied by the sum fixed by the Department of Finance for the settlement of duties during the month in question, which in no case will be less than 220 per cent. The product will represent the amount of import duties to be paid by the importer.

Art. 3. In order to determine every month the rate of settlement referred to in the foregoing article, the Department of Finance will take the average of the rates at which the banks of the capital have sold sight drafts on New York on each of the days comprised between the 1st and 25th of the month in which the announcement of the rate has to be made, making a reduction of 30 per cent (or less if the liabilities of the nation payable in foreign coin increase in future) on the points of difference between the fixed exchange rate of 220 per cent and the average in question. The said Department, any day between the 25th and 28th of the month in question, will apprise the custom-houses through the general custom-house bureau of the rate adopted and at which duties are to be settled during the following month, said rate being published in the Diario Official.

Art. 4. The rate of settlement for import duties adopted for each month will be applied to merchandise carried in ships anchoring in the port of their destination, or brought in over our frontiers after 12 o'clock on the night of the last day of the previous month and before the same hour of the last day of the current month, even though in either case the adjustment of clearance formalities be effected at a date subsequent to the last day of the month during which the rate of settlement was in force. Goods imported through the mails will be subject to the rate for the settlement of duties in force on the day of their arrival in the country.

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*A report covering the same information has been received from Vice-Consul Pagés, of Veracruz. See also report just preceding this.

ART. 5. The stamp tax payable at the time of their importation by alcoholic beverages and foreign cards, as well as the additional duty for the benefit of the municipalities of the towns where the custom-houses are situated, will be estimated on the basis of the import duties, calculated according to the foregoing articles. The pecuniary penalties provided by the general custom-house ordinances to correct infringements of those ordinances will be computed in the same manner when those penalties are based on a percentage of the import duties.

ART. 6. Merchandise imported for consumption in the free zone, with the exception provided by article 676 of the general custom-house ordinances, will pay only 10 per cent of the duties calculated according to the terms of article 2 of this decree; but the tax for the benefit of the municipalities, as well as the stamp tax payable with respect to alcoholic beverages and foreign cards, imported for use in said zone, will be estimated and paid on the basis of the full duties in question.

ART. 7. Merchandise imported for the free zone and similar merchandise produced in that region, and which is forwarded farther inland according to the provisions of Section IV, Chapter XXII, of the general custom-house ordinances, will pay duties at the rate of liquidation in force at the date when permission for forwarding the goods inland is solicited, and from the total of said duties the 10 per cent spoken of in the foregoing article will be deducted, even though the merchandise may have been imported at any prior date. The duties on foreign goods moved from point to point of said zone will be estimated in the same manner, either with a view to collecting them when there is room for so doing according to law, or with a view to the imposition of penalties provided for infringements of the same law.

CUBAN PRESIDENTIAL MESSAGE.

Minister Squiers sends from Habana, November 8, 1902, translation of President Palma's message to Congress, presenting the project of the general budget of expenses and revenues for 1903, showing an estimated surplus of $2,614,032.

Mr. Squiers gives the following summary of the message:

Mr. Palma calls attention to a decrease of $7,157,855.21 in the disbursements during the last fiscal year, without making any reduction in services of sanitation, which he points out will yearly call for increased expenditures.

Educational matters are well supported, the number of schools being 3,474, with an attendance of 163,348.

An agricultural station is to be organized at a cost of $75,000.

The statistics submitted show a decrease in imports during the first six months of 1902 amounting to $1,700,000, and of exports to $12,300,000, or 5 per cent in the former and 28 per cent in the latter, as compared with the year 1901, due, it is claimed, to the low price of sugar.

Estimated receipts on account of consular fees amount to $250,000, as compared with $850,000 estimated receipts under the first consular fee bill which passed Congress, and $550,000 under the amended bill which passed the Senate and is now pending in the House.

It is stated that this is the smallest Cuban budget presented since the middle of the century, and when certain expenses are transferred from the General Administration to the provincial or municipal, there may be a still further reduction of 25 per cent.

The message reads:

HABANA, *November 1, 1902.*

To Congress:

I fulfill with true satisfaction the duty imposed upon me under section 5 of article 68 of the constitution, in presenting to Congress the project of the general budget of the nation for the fiscal year of 1903.

For the first time we, as Cubans, exercise the most important of the rights which a people can enjoy—that of freely regulating its revenues and expenses—and this must be for all a cause of true pleasure because it was one of our most ardent aspirations, which, after bloody sacrifices, we see to-day happily realized. The Government congratulates itself upon contributing on its part to the regulation of the economic life of the State, proposing to the legislative power the estimates for the maintenance of the public services and the revenues deemed necessary to cover them.

During the existence of Spanish sovereignty, the Cuban budgets were approved, first, without the concurrence of the representatives of the country, and, later, with the intervention of the few who were sent to the Spanish Parliament and who, by reason of their small number and other causes, never had any effective influence in favor of interests genuinely Cuban. In the thirty-one tables accompanying, the revenues and expenses are shown in detail, which were estimated for Cuba from the year 1850 to 1898, and it may be seen from them what was the total amount of the obligations which were a charge upon the local treasury and the application given to the income which was exacted from the Cuban people, justifying the protest of the same against that system, which was contrary to its legitimate aspirations and most pressing necessities.

During the rule of the intervention, budgets were not made, and, on this account, I requested in the messages which I addressed to the Chamber under your worthy presidency on the 11th of June and the 22d of August last the necessary authorization to pay the expenses of the State until these general budgets were approved, indicating in those messages the causes which prevented the realization with the promptness desired of such an important work. A starting point was lacking because of the special organization given by the intervening Government to the public services which discharged their duties without any budget, the needs of the State being paid by means of the concession of funds on the request of the disbursing officers of the various departments, in monthly requisitions at first, and afterwards bimonthly. On the cessation of that Government on the 20th of May, services which before had an independent organization, or were directly subject to the headquarters of the Department of Cuba, passed over to form part of the Departments of the Cabinet, and on this account there did not exist any precedents in the Departments. It has been necessary, therefore, as a preliminary task, to reorganize and distribute those bureaus in conformity with the new order of things established at the inauguration of the Republic.

In the project which I have the honor to submit to Congress, the endeavor has been to establish the greatest economy, in accord with the manifestations which I made in my programme of the 7th of September, 1901, in which I expressed the necessity of organizing the Republic as modestly as was possible, so as to avoid difficulties and embarrassments for lack of foresight, for which reason we should carefully combine the organization of the public services, as well as their allowances of funds, adjusting them to the capacity of the island in the matter of income, and resting upon actual data and never upon flattering hopes.

As a consequence of that purpose, the expenses have been limited to the necessities which are a charge upon the State, in conformity with the laws and provisions regulating the public services and in accordance with one of the clauses of the appendix of our constitution in what relates to the land and marine sanitary service.

The general summary of the project is as follows:

Revenues.

Customs	$14, 781, 000. 00
Tax on beverages	1, 200, 000. 00
Consular fees	250, 000. 00
Internal revenue	500, 000. 00
Communications (posts and telegraphs)	420, 000. 00
Properties and dues of the State	119, 800. 00
Various sources	243, 200. 00
Total	17, 514, 000. 00

Expenses.

Legislature	413, 319. 68
Executive:	
Presidency	85, 700. 00
Department of State and Justice	310, 396. 00
Department of Government	4, 529, 998. 00
Department of Finance	1, 801, 117. 88
Department of Public Instruction	3, 721, 790. 84
Department of Public Works	2, 923, 011. 82
Department of Agriculture, Industry, and Commerce	165, 319. 50
Total	13, 537, 334. 04
Judiciary	949, 314. 00
Grand total	14, 899, 967. 72
Surplus	2, 614, 032. 28

Deducting from $14,899,967.72, the amount of the expenses in the accompanying project, the amount of the services newly created—*i. e.*, Congress, the Presidency, the consular corps, and the increase of the rural guard—amounting to $1,457,947.68; also the amount of the contracts entered into by the military government, which the actual Government has to carry out, aggregating $1,085,271.38, it would result that the expenses for the services before established would amount only to $12,356,748.66, or $7,157,855.21 less than the sum of the disbursements in the past fiscal year of 1901 to 1902, without making any reduction in the services of sanitation and charities, and others of not less importance. These sums, compared with those of the last three years, present the following results:

Year.	Income.	Expenses.	Surplus.	Deficit.
1899 to 1900*	$17,385,905.30	$15,691,453.06	$1,694,452.24	....
1900 to 1901*	17,154,929.28	17,644,991.81	....	$490,065.53
1901 to 1902†	18,791,473.21	19,514,603.87	....	723,130.66
1903‡	17,514,000.00	14,899,967.72	2,614,032.28	....

* Data from the report of the Secretary of War of the United States of America.
† Data from the report of the General Treasurer of the island.
‡ Estimated.

Examining the expenses, it is to be observed that all those of the legislative power, those of the Presidency and Vice-Presidency, and those of the diplomatic and consular corps are of new creation and unavoidable constitutionally, the latter having a permanent character in conformity with the fundamental law, for which reason they constitute a portion of the fixed estimates and should govern until amended by special laws.

The expenses of the administration of justice also have a permanent character; but, as Congress has not yet enacted the organic law for the judiciary wherein those expenses should be definitely assigned, it is the duty of Congress to adopt such measures as it may deem proper in order that the constitutional provision regarding the legality of such expenses be complied with. In the meantime, the necessary sums to maintain the actual organization are included in the project as the only existing legal organization. For this reason, the allowance for the municipal courts has not been included in this project, because the fixing of its amount is an exclusive attribute of Congress.

In the Department of Government appear the obligations of a transitory character which the State has taken upon itself, such as those of the provincial governments and of sanitation and charities—the first because the provincial councils are not yet organized, and the last because by their own nature they require the tutelary action of the State whenever the local organizations have not the resources to attend to them.

It is possible that the expenses of the provincial government will figure in the actual budget only a few months, taking into account the proximity of the promulgation of the organic provincial law; and those of charities, amounting to nearly $1,000,000, will surely be decreased as soon as the municipal councils are in such condition that the Government can deliver over to them the beneficent institutions of a municipal character.

The cost of the sanitary service, far from decreasing, will increase, inasmuch as on the extension of the organization of the service to the entire country and even beyond it, the amount required for its maintenance will have to be greater. Among those expenses appears the project of the establishment of a chemical bacteriological laboratory of a general nature, wherein shall be made the scientific preparations which to-day are very costly to the State, and wherein chemical analyses will be made, which at present are made under heavy expenses; for which reason, it may be asserted that this laboratory will not only produce effective saving, but will yield a positive revenue.

Among the new expenses of government are included the cost of the rural guard under the law of October 18, amounting to $1,783,582; the secret police, previously supported in part by the municipality of Habana, and now a charge upon the State because of existing provisions; as well as the subvention assigned to the corps of firemen by order No. 103, series 1902, which is reduced to $6,000 in place of the $12,000 assigned in said order, for which reason the municipality of Habana should contribute a greater amount than the State for the maintenance of that useful institution, as it has been relieved of other expenses of a local character, and it is enabled therefore to attend with greater freedom to the municipal expenses.

Regarding the branch of finance, the greatest economy has been observed in all the services attached to the Department. On the termination of the American occupation, the reorganization of all the services was effected, seeking uniformity in the economic and financial administration of this island. By order No. 113, of March 7 last, it was provided that the offices of the Treasury and of the General Auditor (to-day General Auditing Department of the State) should pass over to that Department, and by order No. 142, of the 10th of the same month, the same disposition was made of the customs service, the coast guard, and the bureau of mercantile statistics.

It was also provided—order No. 133—that the immigration and quarantine services should be attached to that Department, and by a resolution of headquarters on the 19th of the same month it was given possession of the arsenal, Camp Columbia, the Triscornia Railroad, and various other properties of the State which had been administered directly by said headquarters.

In the estimate of the Department of Finance are stated the sums considered indispensable for the expenses of transportation; the commission of the National Bank, according to the contract of February 18 of this year; the increase of the coast-guard service; the cost of leasing the lands at Triscornia according to the instrument of November 13, 1900; the expenses under the contract of the ice plant and electric-light plant of hospital No. 1 and of the electric plant established at the Quartel de la Fuerza; the $91,027.56 to be paid annually to the clergy according to the instruments of October 2, 1901, and January 11, 1902; the amount calculated as necessary for reimbursement and returns for account of land and marine rents; and that which is believed to be indispensable to satisfy the "censos" recognized as liens upon properties of the State.

By the decree of the 7th of June of the present year, the marine sanitary service, which had been attached, by order No. 133, to the Department of Finance, was transferred to that of Government, inasmuch as the general direction of sanitation created by the intervening Government belonged to that Department. To the latter belonged also, by reason of its special character, the matters relating to that branch.

By the decree of June 9 last, the administrations of rents and taxes of the fiscal zones of Guanajay, Cardenas, Cienfuegos, and Manzanillo were suppressed. This reform represents for the Treasury a saving of $39,800 a year. The suppression of various municipalities of the island having been provided by order No. 23, current series, the action of some of these zones was diminished and consequently the work intrusted to them decreased.

That of Cienfuegos collected in the year 1901 only 4.321 per cent of the total of the internal revenues of the island; that of Cardenas, 4.146 per cent; that of Manzanillo, 1.379 per cent; and that of Guanajay, 1.349 per cent.

The receipts of these suppressed zones, as compared with their cost, was as follows, in the year 1901:

Zone.	Collections.	Cost.
Guanajay	$9,060.56	$9,060.00
Cardenas	27,846.10	9,360.00
Cienfuegos	29,020.03	12,320.00
Manzanillo	11,688.11	9,060.00
Total	77,614.80	39,800.00

It results, therefore, that the budget of these branches would absorb more than 50 per cent of their collections.

The service for payments has not suffered any injury with the suppression of said zones, because they continue to be made, as previously, by the administrations of the provincial capitals, with the exception of those in the zone of Holguin.

On the creation of the zones of Cienfuegos and Manzanillo, various municipal districts belonging to the province of Puerto Principe were attached, altering the provincial division, which was reestablished with the suppression of those offices, as was just and proper, according to the provisions of the constitution.

The zone of Holguin has been left in existence because of the great distance which separates it from the capital of the province, and its preservation facilitates the service without doing violence to the provincial regimen.

By the order No. 78, dated June 14, 1899, of the military governor, the suppression of all the captaincies of the port of the island was provided, intrusting the same to the administrators of customs, with the exception of that of Habana, which was left in existence and in absolute independence of every other administrative organism.

To put an end to that exception, which was of no benefit to the service, but rather, on the contrary, was an obstacle to the same, the office of captain of the port of this capital was suppressed by decree of May 29 last, its functions passing over to the administrator of customs.

It has been necessary to increase the personnel somewhat in the central offices in order to attend to the new duties to them intrusted.

In the Department of Public Instruction, it has been necessary to preserve the actual regimen as much in higher instruction as in intermediate and primary, because the organization of the university, the institutes of secondary instruction, the Academy of Arts and Trades, and the schools of primary instruction follows plans of study established by existing legislation, and the Executive lacks power to make alterations in organizations created by law and in the allowances therein assigned for them all.

Article 31 of the constitution ordains that primary instruction shall be compulsory, and that it, as well as that of arts and trades, shall be free, both being in charge of the State, while the municipality and the province are unable to sustain them, respectively, for lack of sufficient resources. Consequently, the 3,474 schools are maintained, having an attendance of 163,348 scholars of both sexes, such primary instruction using up the greater part of the estimate for the branch.

It is evident that if schools were suppressed it would be easy to reduce the expenses of primary instruction, but this would be a saving to the prejudice of the social culture of the Cuban people, which requires that the Government should further education by all the means within its reach as the basis of our national life.

In public works, the Government has had to accept the contracts made by the American military government, which left in plan and under contract various works whose completion must be attended to, as well as the carrying out of those demanded by the necessities of the island, among them the construction of several bridges and highways, the improvement of harbors, and the service of light-houses to facilitate the interior and exterior traffic of the Republic, and consequently the commercial movement.

In the budget of this branch, the items destined for certain expenses of a municipal character, which have passed over to be obligations of the respective municipal councils, have been suppressed, which councils the State assists with some pecuniary subvention, having ceded to them in addition all the properties and implements with which the works were carried on, which were partly, and still are partly, for account of the public treasury.

For the branches of agriculture, industry, and commerce, the credits only are assigned which are necessary for the maintenance of the Department and the creation of the meteorological service and that of crops, together with a small credit of $75,000 to organize an agricultural station.

The Government laments the meagerness of the allowance for this Department, and it hopes that when the loan is approved which is now under discussion by the Chambers the organization will be provided for the services of the same, so that it will reach the importance which corresponds to it and which it should have in a country like ours, essentially agricultural.

Whatever may contribute to the betterment and prosperity of agricultural wealth will be the object of the attention of the Executive, who will favor within his power the initiative and purposes of all to the end that its reconstruction may be effected with the greatest brevity, carrying out the improvements which the actual cultivation exacts and devoting itself to the development of others which offer appreciable advantages in other countries, and which can yield them in our own by virtue of the exceptional conditions of our soil, for the greater part still uncultivated.

The economic situation of the country is certainly not satisfactory, but there is no reason to entertain doubt regarding a very near improvement, as soon as the reciprocity treaty is negotiated with the United States and an outlet can be given, under favorable conditions, to our two principal products—sugar and tobacco.

According to statistical data compiled by the Department of Finance, the commercial movement between the Republic of Cuba and foreign countries during the first six months of 1902 shows a result inferior to that of the like period of 1901. The decrease of imports is equivalent to $1,700,000 and represents 5 per cent of those of the first six months of 1901. In exports the decrease is greater—$12,200,000, or 28 per cent of those for the like period of 1901.

So remarkable a decrease is due to the low price of the sugar shipped abroad and to the diminished sale of this product in expectation of the tariff concessions for Cuba which were urged in the United States and which might bring about more favorable prices.

In the first six months of 1901, 465,000 tons of sugar were exported, 132,000 tons remaining in storehouses.

In the like period for 1902, the exportation has only reached 332,000 tons, and the amount on hand in store on the 30th of June was 450,000 tons, which facts permit the total exportation for the year to be calculated at about 760,000 tons, deducting the consumption of the island; but in spite of this probable larger exportation in 1902, if the sales are effected at the average price of 3 reales per arroba, the value would result $2,000,000 less than last year.

The general commercial movement of Cuba during the last three years is as follows:

Year.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1899.				
First 6 months	$35,911,800	$31,600,600	$4,311,200	....
Second 6 months	39,391,700	19,332,100	20,059,600	....
Total	75,503,500	50,932,700	24,370,800	....
1900.				
First 6 months	37,478,200	30,066,600	7,411,600	....
Second 6 months	32,601,100	21,385,800	11,215,300	....
Total	70,079,300	51,452,400	18,626,900	....

Year.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1901.				
First 6 months	33,663,800	42,942,500	....	$9,278,700
Second 6 months	34,089,300	23,559,600	10,529,700	....
Total	67,753,100	66,502,100	1,251,000	....
1902.				
First 6 months	31,977,100	30,687,000	1,290,100	....
Grand total	245,113,000	199,574,200	45,538,800	....

For the comparison of values, the reduction in the price of the sugars which were exported must be taken into account, as well as the amount on hand for sale, which, fortunately, has so diminished in the last two months that it will probably be entirely realized upon in the remainder of the present year.

The situation through which the sugar industry is passing is not exclusive for Cuba, for all countries which produce cane sugar are feeling as she does the rigor of the competition of the beet, which, thanks to very advanced methods of elaboration and the protection afforded to it by bounties, direct and indirect, can be placed in all the markets of the world under favorable conditions. For us this competition has been more keenly felt because of the afflictive circumstances through which Cuba has passed and because the reduction has not yet been reached in the tariff duties which are collected in the United States upon our products; but we should have faith that so soon as the reciprocity treaty is entered into with that nation, whose First Magistrate is carrying on an active campaign in furtherance of this just cause, with the suppression of the bounties agreed upon in the Brussels conference and the measures which Congress will adopt to favor agriculture, industry, and commerce, the reconstruction of our wealth will, within a few years, be complete.

The conditions of our soil and the energy of its inhabitants, demonstrated under all circumstances, are factors which will aid also in the accomplishment of these patriotic desires.

Congress has already demonstrated the importance which it attributes to the development of the cattle industry by enacting the law of September 15, which grants tariff franchises for the importation of some classes of cattle as a powerful stimulus for reaching, by that branch of our wealth, its complete development.

Taking into account the circumstances set forth in the preceding paragraphs, the income has been calculated with some reductions, as compared with the collections for the last three economic years and the result of the first three months of the current year.

The same items of taxation are left in force, to which the revenues of the State were reduced since the reform of the tax system of the island was made by the decree of March 25, 1899, all direct taxes and some indirect passing over the municipal councils, the State reserving for itself only the indirect revenues of customs, posts, telegraphs, real-property transfer taxes (impuestos de derechos reales), the fees from banks and corporations, the income of its estate and properties, and the dues imposed upon the same.

It is for Congress to determine at the proper time whether the obligations of the State ought to be met, as actually happens, only with the proceeds of indirect taxes of an uncertain amount and subject to variations from natural causes, or for unforeseen circumstances or external causes, or whether a complete transformation should be effected in the actual revenue system of the Cuban State by virtue of the attributes conferred by section 8 of article 59 of the constitution, so that in turn the provinces and the municipal councils may make use of the rights conferred upon them by articles 93 and 105 of the same.

It is proposed to restore the tax on the importation and manufacture of beverages, created by the budget law of 1892-93, which yielded approximately $1,250,000.

The tax on alcohols constitutes one of the bases of the budgets of the principal European nations and of that of the United States. In England, it yields 36 per cent of the total of the budget of revenue; in France, 19 per cent; in Germany, 18 per cent; and 29 per cent in the United States. Now, then, although it is not possible for it to yield in like proportion in Cuba, because a great part of the spirituous beverages which are consumed among us is imported and is subject to the payment of tariff duties, and also because we have to attend to the development of our local industry, it may be asserted, nevertheless, that the proceeds will be of considerable importance. Under that aspect, wines and spirituous and fermented beverages should be subjected to the proposed tax, regulating at the same time the tax upon the factories established in the country, with the exception of those that exist in the sugar mills, all being under obligation to contribute to the State in the amount proposed, and omitting from the tariffs of the industrial tax the items which said factories contribute to the municipal councils, for the purpose of unifying the collection of said tributes.

By reason of the creation of the consulates, the corresponding fees will be exacted which it is calculated can produce approximately $250,000 a year.

The surplus which results from a comparison of the income and the expenses is justified by the necessity of attending to the new expense which will be caused by the increase in the artillery corps, the allowance for municipal courts, and the interest and sinking fund for the loan which is pending approval in the Chambers, the latter of which items is properly given the character of permanent, in accordance with the provisions in section 2 of article 59 of the constitution.

I will conclude by stating that the present project presents the smallest budget which Cuba has had since the middle of the last century, with the favorable circumstance that now for the first time all of its appropriations will be applied to necessities and obligations resulting in her own advantage; and I may add that when Congress enacts the provisions to regulate and organize everything related to the general administration, the provincial, and the municipal—and it will be possible for the provinces and the municipality to bear their own special expenses—the general budget of the State will be considerably reduced, for more than 25 per cent of its total is devoted to-day to the payment of provincial and municipal obligations.

It will then be possible to devote annually important sums to the reconstruction of the country and the furthering of its general interests, and their development will solidify the work of our independence upon the firm foundation of labor, education, and public and private wealth.

The project is accompanied by the bases of those provisions which are deemed necessary for the application and orderly operation of the budget, it being understood that in this case the Executive only suggests a series of ideas or principles of a general character, which Congress may accept in part or in whole, as it may deem most convenient for the public service and the general interests of our Republic.

Yours, respectfully,

T. Estrada Palma.

REPUBLIC OF CUBA, DEPARTMENT OF FINANCE—PROJECT OF THE BUDGET FOR THE FISCAL YEAR 1903.

Revenues.

Customs	$14,781,000.00
Tax on beverages	1,200,000.00
Tariff fees [evidently consular]	250,000.00
Internal revenues	500,000.00
Communications	420,000.00
Properties and rights of the State	119,800.00
Various sources	243,200.00
Total	17,514,000.00

Expenses.

LEGISLATURE.	
Senate	125,739.68
House	266,820.00
Journal of sessions	20,760.00
Total	413,319.68
EXECUTIVE.	
Presidency	85,700.00
Department of State and Justice:	
Office of Secretary	6,000.00
Direction of State	85,826.00
Diplomatic corps	167,100.00
Direction of justice	51,470.00
Total	310,396.00
Department of Government:	
Office of Secretary	132,724.00
General archive	13,500.00
Secret police	52,620.00
Rural guard	1,783,582.00
Artillery	123,133.00
Habana prison	147,628.00
Women's prison	8,880.00
Jails	352,898.00
Charities	873,659.00
Sanitation	292,048.00
Communications	623,628.00
Civil governments	125,698.00
Total	4,529,998.00
Finance:	
Secretary's office*	618,469.00
Fiscal zones	116,540.00
Customs	766,010.00
Properties of the State	197,287.56
Immigration	56,811.32
Drawbacks	36,000.00
Contingent	10,000.00
Total	1,801,117.88

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*This item includes expenses of General Treasury, general auditor, central section of customs, and central disbursing office.

Public Instruction:	
Secretary's office	$124, 274.00
University	290, 530.00
Institutes and schools	285, 673.00
Primary instruction	3, 021, 313.84
Total	3, 721, 790.84
Public Works:	
Secretary's office	163, 720.00
Highways and bridges	661, 272.82
Ports	805, 239.00
Light-houses	147, 416.00
Sanitation	863, 680.00
General expenses, new works	256, 684.00
Railroad commission	25, 000.00
Total	2, 923, 011.82
Agriculture, Industry, and Commerce:	
Secretary's office	43, 020.00
Meteorological service	7, 808.50
Provincial boards (agriculture, industry, and commerce)	11, 064.00
Inspection, public lands and mines	10, 650.00
Provincial sections—	
Public lands	10, 904.00
Mines	6, 873.00
Agricultural station	75, 000.00
Total	165, 319.50

JUDICIARY.

Supreme court	109, 050.00
Audiencias	348, 802.00
Trial courts	395, 112.00
General expenses	96, 350.00
Total	949, 314.00
Grand total	14, 899, 967.72

Résumé.

Income	17, 514, 000.00
Expenses	14, 899, 967.72
Surplus	2, 614, 032.28

SANITARY CONDITION OF HABANA.

Reports of the Military Governor of Cuba for the years 1899 and 1900 show that Habana was practically converted from a very unhealthy into an exceedingly healthy city through a very comprehensive system of cleaning the sewers, cleaning the streets, cleaning the public buildings, cleaning the hospitals, orphan asylums, and similar institutions, and placing them in sanitary condition by plumbing and sewerage systems; by creating isolated hospitals and placing cases of infectious diseases therein; by a continual thorough disinfection of the sewers and streets by the use of electrozones; by the inspection of stables, bakeries, butcher shops, hotels, cafés, stores, etc.; by a house-to-house inspection, whereby all the houses in the city were inspected every two months; and by the installation of a sanitary system of plumbing wherever the sanitary condition of a house demanded the same, and in the construction of all new houses. As this system brought about, to a great extent, healthy conditions in Habana, it follows that the relaxation of that system will bring about the former insanitary conditions to a greater or less degree. It is believed that such a relaxation is gradually but surely taking place.

ENGINEER DEPARTMENT.

Plumbing installations.

The remodeling of plumbing work in the old and insanitary buildings in Habana has been gradually decreasing, and at the present time there is little improvement being made except where new buildings are being erected. One reason for this is that the inspectors of the sanitary department are more lenient than heretofore, due in a measure to the fact that a new sewerage system appears to be a thing of the dim future, and they do not care to force people to make many temporary improvements at this time.

If the property owners were assured of the fact that the sewers would be commenced in the near future, they would not have such strong objections to making improvements. There are at present hundreds of buildings in the city where no attempt is being made to replace the filthy toilet rooms and their cesspools below the floors with modern plumbing. The inspectors appear, as a rule, to turn their attention to new buildings.

Violation of sanitary laws.

As a specific instance wherein the laws of sanitary installations are violated, attention is called to a house nearly completed on Infanta street, south of Carlos III.

The house mentioned has no pozo-moura (cesspool) and no rain-water poceta (rain-water catch basin), the drain from the fixtures going into the sewer direct, and the water-closet vented direct to the roof only; the slop and kitchen sink has but a common cast-iron trap under it, and it is not even vented to the roof. This sink is located in the kitchen. In the saloon and in the dining room wash basins are installed; these are connected with common pipe, and it is believed they discharge direct into a bell trap. This bell trap, which is of 12 size, is in the floor of the barroom, and is not even vented. The main sewer has no house trap, no fresh-air inlet. Such is the condition of a house which has just been built under the Cuban inspectors. The law covering this class of work is as follows:

Cesspools.—To provide pozo-moura and connect same to the sewer in the street; provide house drain from pozo-moura to all fixtures; vent pozo-moura above roof by an independent pipe; install house trap on main drain, and provide fresh-air inlet to same, trap all fixtures; and in cafés, saloons, and hotels, to install grease trap under sink in kitchen.

It would be possible to cite many other similar cases, but it is not necessary to do so.

Sanitary defects in plumbing.

It is desirable to call attention to some of the defects in the present system of sanitary improvements, as follows:

Pipes in walls.—The waste and vent pipes from water-closets and other fixtures which are in most cases placed in recesses in the walls are plastered in at once and the joints in said pipes are in many cases not filled with lead. In exceptional cases, where lead is used, the joints are rarely if ever calked, but to all outward appearances the work is finished up to the standard.

Pipes under floors.—The same may be said of sewer and rain-water pipes, which are laid in a careless manner beneath the floors and covered as soon as possible, there being no pretense made toward making tight joints. The cement or tiled floor is laid at once, and for a while it is impossible to detect any of the vile odor which is sure to arise in the course of time, in some cases on account of the earth settling about the pipes, which allows the floor to crack.

Cesspools and rain-water pits.—The temporary cesspool, one of which each separate house must have, appears to be the most important feature in the eyes of the inspector. They must be built to conform in every way to the rules, no matter whether the building contains one closet or twenty-five. The cesspool must not be covered until it is passed upon by an inspector. He finally passes it and goes away; a few rails are then laid over the cesspool, with flat stones between, and some loose mortar or dirt is shoveled over the top, the floor is laid, and we have what is supposed to be an hermetically sealed cesspool, located in a court which, as a rule, has windows from sleeping apartments facing it.

Rain pits.—The same attention is not given the rain pits, which are built on the same order as the cesspools. These connect directly with the sewer, and are supposed to form a trap. Prior to May 20, it was customary to prove these traps, as they are built of brick and cement and supposed to be nonabsorbent. At the present time, it appears to make no difference about the absorption of water, so long as they are built of proper dimensions.

SANITARY DEPARTMENT.

Hygienic condition of cafés.

The following-named cafés were found to be in a filthy and stinking condition: Café Casino, Obrapia street; Café La Plata, Prado and Teniente Rey streets; Café De Luz, Plasoteta and Luz streets; and the Plaza del Vapor and Plaza de Christina. Inquiry seemed to show that these places had been inspected without anything being done to better their condition. The hygienic condition of the more important hotels and restaurants is good.

Street cleaning.

The cleaning of the streets in the residential and business sections of the city appears to be as consistently carried out as during the American occupation, but in that section of the city where the houses of ill fame are located and in the Jesus Maria and arsenal districts but little cleaning appears to have been done, these districts being at present in a very dirty condition.

House-to-house inspection.

These inspections are still continued by the sanitary department, but are not being pushed with the same vigor as prevailed prior to May 20, 1902. This is a measure which meets with great opposition from landlords and tenants, the inspectors, in many instances, making a perfunctory examination and presenting a favorable report when the conditions found are just the reverse.

Disposal of garbage.

The removal of garbage at night is carried on with the same regularity and efficiency as under the government of intervention.

Mortuary data.

The official report of Dr. Finlay gives the total number of deaths in Habana for the month of September as 404.

The mortuary reports of burials in the Colon, Baptist, and Chinese cemeteries give a total of 394, showing a difference in favor of Dr. Finlay's report of 10, said apparent discrepancy being covered by the burials in the small and unimportant cemetery of "Calvario," which is not included in this report.

Medical opinion.

Dr. D. T. Lainé (an American), of this city, states:

In my opinion, the present sanitary condition of the city of Habana is as good as during the latter part of the American occupation. The chief sanitary officer, Dr. Carlos Finlay, is a gentleman of exceptional ability and honesty; therefore, his reports and statistics must be accepted as absolutely correct. These show a steady diminution in the death rate and the absence of yellow fever and smallpox in the city. Considering the increased poverty of the people—as compared with last year—the decreased aid extended to asylums and hospitals by the present Government, and the marked falling off in the efficiency of the street-cleaning department, the steady improvement in the general sanitary condition of the city of Habana is good evidence that this department is being well managed. But this can not be said of the general sanitary condition of the cities and villages throughout the remainder of the island. They are rapidly reverting to their former filthy condition.

The present sanitary department of this city is under the Secretary of Government, but I am informed that there is a very strong effort being made to place it under the direct control of the municipality. If this should occur, there would undoubtedly be a very rapid falling off in its efficiency.

COMPARATIVE STATEMENT.

A comparative statement showing expenditures for the sanitary service for four months of the year under the military government, as compared with four months under the Government of the Republic, gives an excess in Cuban Government expenditures over those of the military government of $2,145.58 per month.

JACOB SLEEPER,
Secretary of Legation.

HABANA, *November 7, 1902.*

IMPORTATION OF CATTLE INTO CUBA.

The Department has received from Minister Squiers, of Habana, under date of October 31, 1902, translation of the regulations governing the importation of cattle into Cuba.* These regulations relate to the execution of the law of September 15, 1902, regarding the collection of tariff duties on cattle, horses, and sheep imported into the island, and are summarized as follows:

The importation of cattle shall be effected through the ports authorized for the import trade; the sanitary inspection provided for in article 121 of the customs regulations shall continue to be made. Calves under 2 years, separated from the mother, shall be considered yearlings; imported with the mothers, under 1 year, shall be considered unweaned (crias). Cattle under 2 years, separated or weaned from their mothers, shall be considered calves. The class of breeding bulls shall be proven by the certificate of origin, visaed by the Cuban consul or the person discharging the duties of such. In order to facilitate the discharge of cattle, customs administrators are authorized, after each cargo of cattle has been examined by the veterinary inspector, to classify it according to the declaration of the importer as thin or fat, sending each class to a separate pen. In case of doubt, they shall be weighed together, and if the customs officer and the importer differ as to the result of the average, each lot shall be weighed, head by head, and the animals classified according to the resulting weight. Thin cattle shall be marked with an iron indicating the day, month, and year of importation. Tickets shall be delivered to the importers, so that they may enter separately the fat and thin cattle imported. The date of importation, as to the thin ones, must be entered in the cattle registry according to the brand with which they may have been marked in the custom-house. The classes, conditions, and origin of the imported cattle shall also be entered in said registers. The slaughter of thin imported cattle shall not be permitted before the expiration of three months; before being slaughtered, each head of cattle shall be inspected, a fine of $20 being imposed should the brand show that it has not yet been imported three months. The slaughter of female cattle will not be permitted, except such as are over 10 years of age, having been pronounced useless for breeding purposes by either a veterinary or a practical cattle raiser.

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*See ADVANCE SHEETS No. 1409 (August 4, 1902); CONSULAR REPORTS No. 264 (September, 1902); and ADVANCE SHEETS No. 1465 (October 10, 1902).

Altered horses and mules shall pay according to their height, that condition and their height being made to appear in the custom-house documents.

The exportation of cattle is absolutely forbidden. The shipping of cattle for the consumption of crews and passengers of vessels is authorized only in proportion to the number of the same and the duration of the voyage, according to the itinerary. Cows or date-marked cattle, before the expiration of three months, can not be used. In conformity with the provisions of the law of September 15,* the nomenclature of the customs tariff in force is modified in the following manner as to the animals included in group 1 of class 1:

Item 181.—Horses and mares.

(*a*)	Stallions for breeding, upward of 150 centimeters (59 inches) in height, measured by square (perpendicularly)	Free.
(*b*)	Those not exceeding that measure	$5.00
(*c*)	Altered horses, over 150 centimeters (59 inches)	15.00
(*d*)	Altered horses, less than that height	2.00
(*e*)	Mares, fit for breeding	3.00
(*f*)	Mares, unfit for breeding	15.00

Item 182.—Mules.

(*a*)	Mules exceeding the established height	10.00
(*b*)	Mules under the established height	5.00

Item 183.—Asses.

(*a*)	Breeding asses, males over 130 centimeters (51 inches) in height, measured by square (perpendicularly)	Free.
(*b*)	Other asses, male and female	5.00

Item 184.—Horned cattle.

(*a*)	Cows, fit for breeding, and heifers	Free.
(*b*)	Cows with the calf	Free.
(*c*)	Breeding bulls of the following breeds: Jersey, Guernsey, Devonshire, Durham, Herefords from Porto Rico and the Argentine Republic, provided that the importer duly proves their origin	Free.

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* See ADVANCE SHEETS No. 1465 (October 10, 1902).

(*d*) Yearling bulls	$1.00
(*e*) Male cattle from Florida, over 500 pounds each	5.00
(*f*) Male cattle from Honduras, over 600 pounds each	5.00
(*g*) Fat male cattle from Mexico, exceeding 700 pounds each	7.00
(*h*) Fat cattle from Venezuela and Colombia, or from countries other than those mentioned, over 800 pounds each	8.00
(*i*) Thin cattle—that is, such as do not reach the weights mentioned, according to their origin	2.00

Item 106.—Sheep and goats.

(*a*) Sheep, females	Free.
(*b*) He goats and rams, each	1.00

ENGINEER TITLES IN CUBA.

Under date of November 11, 1902, Minister Squiers, of Habana, transmits the following:

The order (No. 81, March 18, 1902) authorizing engineers with foreign titles to exercise their profession, serve in public office, and fulfill official commissions, upon presentation of said titles to the Department of Public Instruction, is repealed. The authorization granted to engineers, mentioned in order No. 81, as well as those subsequently granted by the Department of Public Instruction, remain in force. According to order No. 90 (June 23, 1899), and modifications of December 5, 1900, engineers having titles issued by foreign universities shall be admitted on their incorporation in the University of Habana, provided their titles fulfill the requirements. The incorporation of titles shall be effected in the form established for the school of sciences, the examinations being upon matters studied in the school of engineers. Cubans holding titles as engineers, issued prior to this law by foreign schools of recognized fame and reputation, may, on presentation of said titles to the Department of Public Instruction, exercise their profession without examination. Agricultural engineers, from the school of agriculture in Habana, in order to exercise their profession freely in Cuba, shall present their certificate of degree to the Department of Public Instruction, and upon proof of its authenticity and personal identification they shall receive a title authorizing them to exercise their profession in Cuba. Professional men holding foreign titles, who have not previously revalidated them, shall not exercise their professions, nor discharge any professional duty—national, provincial, or municipal—dating from the promulgation of this law (October 28, 1902). The engineers above referred to are alone excepted.

CITIZENSHIP IN CUBA.

Minister Squiers sends from Habana, November 13, 1902, translation of a law promulgated November 7, establishing the procedure for obtaining Cuban citizenship, as follows:

ARTICLE 1. The acts by virtue of which Cuban nationality is acquired, lost, or recovered shall be made to appear by means of a record in the section of citizenship of the registry of civil status.

The persons included in the cases referred to in sections 2 and 3 of article 5 of the constitution, and the second of the transitory provisions of the same, and residing abroad, shall exercise the right conferred upon them by the former sections before the diplomatic or consular agent of Cuba nearest to their place of residence.

ART. 2. The inscriptions to which the preceding article refers shall be made with the following formalities and requirements:

1. The date and place where they are drawn.

2. The names and surnames of the officials authenticating the same.

3. The names, surnames, and filiation of the parties and witnesses participating in the act.

The witnesses referred to in the preceding paragraphs shall be two, having legal capacity, and shall make a declaration setting forth the truth of the circumstances, which should be expressed in the inscription.

ART. 3. The interested parties shall present to the custodian of the registry their certificates of baptism, or the certificate of birth, as the case may be, as well as the record or certificate of marriage, should they be married, together with the certificates of birth of the wife and of the children.

Should it be impossible to present the documents referred to in the preceding paragraph, they shall indicate the archives where they may be found and their approximate date.

In the cases where the birth of the interested parties, their wives, or their children shall have been inscribed in the registry of civil status of this island, or in the register in charge of the diplomatic or consular agent, the acquisition, loss, or recovery of Cuban citizenship shall be made by a marginal note on the record of birth, for which purpose the custodian of the register wherein the said acquisition, loss, or recovery occurs shall remit, within the term of fifteen days—counting from that on which the inscription took place—a certificate of the same, to the custodian of the register wherein the said birth appears.

For failure to comply with the provisions of the preceding paragraph, a fine of from $10 to $25 in United States currency shall be imposed on the custodian of the register, required to remit the certificate.

ART. 4. In the inscriptions mentioned in this law, the following circumstances shall be expressed if it is possible:

1. The former domicile of the interested parties.

2. The names, surnames, place of birth domicile, and profession or occupation of his parents.

3. The name, surnames, and place of birth of his wife, if he be married.

4. The names, surnames, place of birth, residence, and profession or occupation of the parents of the latter.

5. The names, surnames, place of birth, residence of the children, setting forth if any of them are emancipated.

Whenever it is impossible to express any of the circumstances mentioned previously, a statement shall be made in the inscription of the reason of that impossibility.

ART. 5. In order to be inscribed as Cuban citizens, the persons included in section 1 of article 6 of the constitution shall prove by means of the discharge, or of any other document issued by a competent revolutionary authority, that they have belonged to the liberating army. This proof shall be made by such persons before the custodian of the civil registry of their domicile, should they be in this island, or by means of a special attorney before the custodian of the civil registry at their last place of domicile therein, or of the place of domicile where they intend to fix their residence in Cuba, if they are abroad.

ART. 6. In order to be inscribed as Cuban citizens, the persons included in sections 2 and 3 of article 6 of the constitution shall prove before the custodian of the civil registry of their place of domicile in Cuba the residence required by said sections by means of an authentic document, or proof by witnesses made in the manner established in article 8 of the present law.

The declaration of intention to which section 3 of article 6 of the constitution refers should be made before the custodian of the civil registry of the domicile which the interested party has in Cuba with the same formalities as in case of inscription.

ART. 7. To be inscribed as Cuban citizens, the persons included in section 4 of article 6 of the constitution shall prove before the custodian of the registry of civil status of their place of domicile in Cuba that they have not been registered in the registry of Spaniards opened in pursuance of the provisions of the treaty of Paris of December 10, 1898; that they are of full age; and that they resided in this island on the 11th day of April, 1899.

The proof of not being inscribed in the said registry of Spaniards must necessarily be made by means of a certificate issued by the functionary of said registry.

The circumstances of full age and of residence shall be accredited by means of proof by witnesses received under oath before the custodian of the registry of civil status, the witnesses declaring that they resided on the aforesaid date of April 11, 1899, in the same locality as the moving party making the proof.

The interested party shall present a certificate of the captaincy of the port, or proper authority, wherein shall appear the date of his arrival in the island, the age which he then had, whether he came alone or with a family, the name of the vessel which brought him and of the captain of the same.

ART. 8. To be inscribed as Cuban citizens, the persons included in section 5 of article 6 of the constitution shall prove before the custodian of the civil registry of their place of domicile that the circumstances exacted in said section exist as to them, by means of a declaration of witnesses received under oath.

ART. 9. In all the inscriptions to which this law refers, it shall be made to appear that the interested parties renounce their previous nationality and that they swear to obey the constitution of the Republic, the laws which are actually in force in this island, and those which may be in force in the future.

ART. 10. The custodians of the registry of civil status in this island shall remit to the division of state of the Department of State and Justice a certificate of each inscription which they make in the books of the section of citizenship, and to the section of registries and notarial affairs of the same Department a comprehensive table of the inscriptions, classified according to the model which said section shall formulate.

The diplomatic or consular agents shall remit to the Department of State certificates of the inscriptions referred to in paragraph 2 of article 1 of this law, for their transcription in the registry of civil status of the last place of domicile which the interested parties may have had, or of that which they propose to have in this island.

The term for the remission provided for in the two preceding paragraphs shall be fifteen days, counted from the day following that on which the inscription shall take place.

Failures to fulfill this duty shall be punished by the Secretary of State.

ART. 11. Those who prior to the promulgation of this law have proven in the extinct Department of State and Government that there exist, as to them, the circumstances exacted in articles 5, 6, 7, and 8 of this law, are exempted from the proof of the same, as well as those that may have made in the registry of civil status of their domicile the declaration of option or renunciation of nationality, to the end that they might be registered as electors, according to the provisions of the additional dispositions of order No. 218, of October 14, 1901.

SUGAR CROP IN SANTIAGO DE CUBA.

Consul R. E. Holaday writes from Santiago de Cuba, December 3, 1902:

I transmit a table giving a partial list of the sugar estates in this consular district, with the amount of sugar produced this year and the estimated crop for 1903.

I endeavored to procure data to make a complete report, but information is difficult to obtain and returns are so slow in coming in that I have deemed it advisable to send a partial list, in order that the general state of the crop may be understood.

The conditions are favorable for a decided increase in the crop this year over that of last. Grinding will begin about the middle of this month. The increase in the price of sugar has had a stimulating effect, and operations are being pushed for preparing the crop for the market.

The table follows:

Partial list of the sugar estates in the province of Santiago de Cuba, the total crop produced in 1902, the estimated crop of each estate for the year 1903, and the estimated increase of production for the year 1903.

Estate.	Crop of 1902.	Estimated crop of 1903.	Estimated increase.
	*Bags.**	*Bags.**	*Bags.**
Union		35,000	
Hatillo		28,750	
Santa Ana		28,750	
San Sebastian		12,500	
Soledad		50,000	
Ysabel		50,000	
Esperanza		45,000	
San Antonio		40,000	
Romelie		35,000	
Los Canos		33,000	
Santa Cecilia		33,000	
San Miguel		20,000	
Santa Maria		12,000	
Confluente		10,000	
Total	†380,785	453,000	72,215

* Bags of 300 pounds each net.

† Total crop of sugar produced on the estates given in this list. The amount for each separate estate was not obtainable.

TREATY OF PEACE IN COLOMBIA.

The following translation of the recent peace treaty in Colombia has been received from the Navy Department:

On board the flagship *Wisconsin*, of the United States Navy, gallantly placed at the disposition of the undersigned by Rear-Admiral Silas Casey for the celebration of the conferences that have taken place for the solution of the present treaty.

Gen. Victor M. Salazar, governor and military chief of the Department, and Gen. Alfredo Vasquez Cobo, chief of staff, general of the army in operation on the Atlantic, the Pacific, and Panama, as the representatives of Gen. Nicolas Perdomo—the Government minister invested with Presidential powers in the commission, general in chief of the armies of the Atlantic coast, the Pacific, and Panama for the one party; for the other, Gen. Lucas Caballero, Secretary of War in the Department of War in Cauca and Panama, and general of the united armies of Cauca and Panama; and Col. Eusebio A. Morales, Secretary of the Treasury of the same, as the representatives of Gen. Benjamin Herrera, Director of War in Cauca and Panama, and general in command of the united armies in operation in these Departments, met, animated by the highest sentiments of patriotism, to put an end to the shedding of the blood of countrymen, secure the reestablishment of peace in the Republic, and provide the following methods by which the nation can carry to a happy terminus the negotiation upon the Panama Canal. They have concluded the treaties, to the faithful fulfillment of which are pledged the faith of the Government, and that of the two military parties.

ARTICLE 1. The solemn declaration of the Government to immediately reestablish the public order in the Republic, making an exception of the districts or provinces in which there are revolutionary forces that do not wish to receive the present treaty.

ART. 2. The immediate liberation of all prisoners of war and political prisoners in the Republic, with the exception of those who do not wish to accept the present treaty.

ART. 3. The cessation consequent upon the establishment of public order, of the reception of contributions of war, and of extraordinary imposts to which Colombians are subjected, with the exceptions established in the anterior articles.

ART. 4. Full amnesty and complete guaranties for persons and effects compromised in actual revolution; the cancellation and immediate annulling of all judgments for political responsibilities, with the exception of persons established in anterior articles.

ART. 5. The exclusive cognizance of the judicial power to effect responsibilities for ordinary offenses.

ART. 6. The incorporation in the rights and obligations that are enforced and imposed by this treaty of all the revolutionary forces that exist in the Republic, and those within or abroad, that are compromised by the revolution and wish to accept the terms of this treaty.

ART. 7. In accordance with the desire of the Government and the nation, as soon as public order is restored, an edict of convocation to elections will be issued, regarding the members for Congress, in respect to which the Government engages itself to use all its authority to effect it with purity and legality, as was promised by the Vice-President in the response given to a memorial signed by various

Liberals of Bogotá the 14th of April of the present year. To this Congress will be submitted for consideration the following questions of high national interest:

(*a*) The negotiations relating to the Panama Canal.

(*b*) The reforms presented to the Congress in 1898 by the Vice-President of the Republic.

(*c*) The reformation of the monetary system of the country, in which paper money serves as a base, making the rentals to the Republic from contracts on the canal inalienable.

ART. 8. The recognition of the Government's authority by the members of the united armies of Cauca and Panama, and by all forces or people that desire to receive this treaty.

ART. 9. The deliverance of all elements of war that pertain to the united armies of Cauca and Panama, on sea and land, among which, first and especially, the Government exacts the steamer called the *Almirante Padilla*, with her battery and other elements in good condition.

ART. 10. The said deliverence to be made by a commission named by Gen. Benjamin Herrera to a commission named by the Government, in the ports of San Carlos, Aguadulce, Chitre, Montijo, Sona, Remedios, and Pedregal in this Department, and in Fermaco, Barbacoas, San Pablo, and Quibro in the Department of Cauca. This is to be done immediately after the approval of this treaty, twenty days being allowed in Panama and forty in Cauca.

ART. 11. The immediate expedition of passports to the places requested by members of the united armies, auxiliaries to pass by passports in accordance with the military code to their homes, those dwelling in other countries to be aided to the Colombian frontiers, in the manner they choose to follow; the inferior officers and troops to be transported in vessels of the Government.

ART. 12. The chiefs and officers of the united armies retain their swords, revolvers, baggage, and personal effects, and their flags—in a manner to be arranged by the general in chief of their army—it being understood that the flags taken from the Government forces are also to be returned, as well as their swords, to the chiefs and officers of the second capitulation of Aguadulce that by virtue of this treaty regain their liberty; the passports to be sent to the places selected for the surrendering of the arms.

ART. 13. The Government charges itself to receive in its hospitals and ambulances, as individuals of its own army, the sick and wounded of the united armies of Cauca and Panama, and to transport them, as agreed, as soon as cured.

ART. 14. The present treaty requires for its validity the approval of Gen. Nicolas Perdomo, minister of the Government, etc., and that of Gen. Benjamin Herrera, Director of War in Cauca and Panama, etc.

For constancy, two examples of the same tenor are signed on board the flagship *Wisconsin*, Panama Bay, November 21, 1902.

(Signed) VICTOR M. SALAZAR.
(Signed) ALFREDO VASQUEZ COBO.
(Signed) LUCAS CABALLERO.
(Signed) EUSEBIO A. MORALES.

PANAMA, *November 21, 1902.*

EXPORT DUTIES IN COLOMBIA.*

Minister Hart sends from Bogotá, October 3, 1902, translation of a recent decree, as follows:

ARTICLE 1. From the arrival of the present decree to the knowledge of the respective managers of the customs of the Republic, and until new orders be given, the charges for the export duties will be made in gold, in the form and amount below expressed:

Clean coffee	per quintal †	$0.70
Coffee in husk	do.	.50
Rubber	do.	3.50
Hides	do.	1.00
Goatskins and the like	do.	3.00
Tagua, or vegetable ivory	do.	.25
Divi-divi	do.	.08
Tobacco:		
Raw	do.	.40
Plug	do.	.50
Prepared	do.	.80
Cotton:		
Raw	do.	.30
Clean	do.	.35
Seeds	do.	.15
Bananas	per bunch	.01
Stuffed birds	per kilogram ‡	1.50
Heron feathers	do.	15.00
Orchids	do.	.30
Tortoise shell	do.	2.50
Balsam	per quintal	1.20
Dye:		
Mora	do.	.80
Brazil	do.	.80
Construction woods (cedar, galiavo, or any other)	per 1,000 superficial feet	2.40
Cocoanuts	per 1,000	1.00
Cattle	per head	8.00
Straw hats	per kilogram	.50

ART. 2. Articles not mentioned, declared for export, will be valued by the section of inspection of the respective custom, with the approval of the manager, and will pay 5 per cent of the value in gold.

ART. 3. The Government will charge for the freight of export cargo: In the Upper Magdalena, $1 gold; in the Lower Magdalena, 80 cents gold—for every cargo not exceeding 10 arrobas (250 pounds).

ART. 4. The payment of the duties will be made in the same way as it has been effected so far; likewise the payment of freights.

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*A cablegram from Minister Hart announces that according to a recent Government decree there will be a progressive reduction of 10 per cent monthly in the export duties of the country, beginning January 1, 1903.

† 1 quintal = 220.46 pounds.

‡ 1 kilogram = 2.2046 pounds.

ART. 5. Private persons who wish to anticipate the payment of funds in gold to the Government will have a reduction of 20 per cent, and when they make the consignment bonds admissible in full in all the custom-houses will be issued to them in payment of export duties and freights.

ART. 6. The Ministry of the Treasury is authorized to issue the bonds of which the foregoing article deals.

ART. 7. Forty days from the date of this decree is the term fixed during which these anticipations can be made and 100 pesos ($100) the smallest quantity which can be anticipated.

ART. 8. The quantity anticipated will be taken into account in order to give preference in embarking the cargo of those who have anticipated the money.

ART. 9. Exporters who are willing to do so will be exempt from the payment of the export duties and of the freight if they will deliver to the Government, as a loan, a sum double the value of the duties and freights.

Paragraph 1. The said loan will be returned in the manner and terms which the Congress of the Republic shall determine, or before, if the Government can do so.

Par. 2. The duties, freights, and loans with which this decree deals will be paid in Colombian gold, according to law 73 of 1867.

ART. 10. Special passports and safe conducts will be issued by the Ministry of War for all those conducting cargo for export to river ports.

The civil and military chiefs, as well as the commanders and chiefs of operations in the field, will order the necessary measures to quicken and facilitate export; will give strict fulfillment to decree No. 1202 of 1901, and for no reason will put contributions on export articles.

ART. 11. Export duties for minerals fixed by decree No. 722 of May 1 last continue without any change, but loans can be made, as well as the anticipated payments with which the present decree deals, relative to the same minerals.

ART. 12. All regulations on the matter which do not oppose this decree are in force and those contrary to it are abolished.

Let it be published and communicated.

Given in Bogotá, on the 20th of September, 1902.

JOSÉ MANUEL MARROQUIN.

OPPORTUNITIES FOR CAPITAL IN HONDURAS.

Minerals.—The principal wealth of Honduras lies undoubtedly in its mineral deposits. There are but few sections that do not show veins of silver, and many that carry gold as well.

The Rosario mine, which is in its twenty-fifth year of continuous working, shows, it is claimed, a profit of some $7,000,000.

There are hundreds of mines lying idle, the products of which have assayed from 100 to 300 ounces of silver to the ton and contained on an average 10 per cent of gold.

Woods.—From the sea level to an altitude of 1,000 feet, Honduras is a vast forest of mahogany, cedars, and other cabinet woods, in which sarsaparilla and other medicinal plants abound. As soon as one reaches an elevation of 1,800 feet, boundless forests of pine and similar woods are seen, so dense that one can travel for days without seeing more than 100 yards in any direction.

Fiber plants, rubber, etc.—Fiber plants are found in great quantities. Rubber, bananas, coffee, tobacco, and other valuable agricultural products can be safely, conveniently, and profitably raised.

Grazing lands are cheap and easily acquired, and are remarkably well adapted to the purpose, being crossed in all directions by streams of pure, clear water.

Laws.—Property is inviolable and only Congress may impose taxes. The civil law recognizes no distinction between natives and foreigners. The foreigner may buy, sell, locate, undertake any industry or profession, own all classes of property, enter or depart from the country with his property, frequent the ports, and navigate the rivers. He is exempt from military service. All that is asked of him is that he respect the authorities and obey the laws.

There has been but one revolution in this country during the last sixteen years and one outbreak, which did not amount to much. The other reported revolutions have existed only on paper—that is, in sensational accounts in the foreign press.

WILLIAM E. ALGER,
Consul.

PUERTO CORTEZ, *November 4, 1902.*

NEW WAGON ROAD IN HONDURAS.

It is advisable for our exporters to Honduras to make use, as far as possible, of the new wagon road which is being built between San Lorenzo, on the Gulf of Fonseca (Pacific Ocean), and Tegucigalpa, the capital city.

Through the active cooperation of the President and the Minister of Public Works, road building has been the chief feature of public activity in Honduras during the past year. The fact that Honduras has had no safe or convenient high roads has been one of the reasons for the tardy development of many enterprises in the interior of the Republic. The difficulty of transportation has been productive of excessive freight rates, and has prevented a large number of merchants from sending goods here, because of the elaborate and unusual methods required in packing to prevent damage by water. This will be unnecessary, in a large measure, as soon as bridges have been thrown over treacherous streams and the means of conveyance changed from mules to the modern freight vehicle, with its facilities for insurance against damage by rain or flood.

This new high road is finished over half way to the coast, and as most of the section yet to be constructed runs over fairly level ground, the completion of the entire route is a matter of only a few months. The grade does not exceed 6 per cent in any place, and for the greater length it varies between 2 per cent and 4 per cent, giving a gentle ascent or descent.

From Tegucigalpa to Sabana Grande—33.5 miles—the road is excellent. In many places it is 50 feet in width. It is on a foundation of lava, the surface of which is arched and covered with finely beaten rock. Side ditches are constructed along the way, and nearly all the bridges and culverts are built of stone; but no bridges have yet been built across the large and really dangerous rivers.

From Sabana Grande to La Venta—10.5 miles—the road has been begun and can be traversed on mule back. One-fourth of the work, to make it serviceable for wagons, has probably been done. This section, over the old road, was the most difficult part of the line between Tegucigalpa and the sea.

From La Venta to Pespire—21 miles—there is a steep ascent, but by the new road, which will be much longer than the present one, the average grades will be maintained. From Pespire to San Lorenzo, on the head waters of the Gulf of Fonseca, the route is mainly level, and it is possible at present to drive any sort of vehicle over it. In the rainy season, this part of the road is usually very muddy, but the raised roadway that it is intended to construct will make it passable at all times. The length of this section is about 16 miles.

As soon as the road is finished to the coast, it is the intention to utilize one side of it for a trolley line for electric freight and passenger cars. It is estimated that freight can be handled at the rate of 5 cents per ton per mile. Water power is abundant for supplying motive force.

ALFRED K. MOE,
Consul.

TEGUCIGALPA, *November 12, 1902.*

RUBBER VINE IN HONDURAS.

I am in receipt of a communication from Señor Don Floriano Davadi, governor of the Department of Comyagua, who informs me that some time ago he discovered in the Pijo Mountains a vine growing in an uncultivated state, varying in diameter from 4 inches to 2 feet, which on cutting produces a sap the nature of which is rubber. These vines grow to 100 feet in length, and they are said to belong to the African family of rubber vines. In Honduras, no one seems to know the name of the vine or the botanical family to which it belongs. The discoverer regards it as superior in quality to the Para rubber of commerce, and asserts that his convictions are borne out by the analyses made by American and European chemists.

The vine thrives at great altitudes as well as in the lower valley levels. Such luxuriance of growth has this plant attained that it is quite capable of being cut in commercial quantities. It may be quickly propagated in the rich soil of this Department by means of seedlings, and the growth being so much faster than that of rubber trees, Señor Davadi thinks the quantity of gum obtained would be large. The trees require six years' attention before sapping can begin.

I am also informed that wild vanilla grows in quantities in the same district.

It has been proposed to form a company for the exploitation of rubber in the Yoro district, but though the names of several prominent men have been connected with the enterprise, nothing has, as yet, been done to begin operations.

ALFRED K. MOE,
Consul.

TEGUCIGALPA, *November 19, 1902.*

RUBBER CROP OF BRAZIL: GUTTA-PERCHA INDUSTRY.

The political troubles in the Acre territory have had a serious effect upon the rubber trade throughout that region, and will undoubtedly result in largely reducing the crop. The rubber produced on the Beni and the Acre is considered the best that comes to Para, and its loss will therefore be felt by shippers and importers alike.

Rubber from the islands and from the Purus, Jurua, Madeira, Solimoes, Rio Negro, Javary, Japura, Jutahy, Ica, Baixo Amazonas, and Branco rivers and their affluents is coming down in great quantities, and the quality rules very high.

CAOUTCHOUC.

It is said that the caoutchouc forests of Peru, from which nearly the whole supply of this product has heretofore been drawn, are practically exhausted. This is the result of the wasteful methods pursued by the gatherers who, instead of bleeding the trees, cut them down. This destructive process has been going on for many years, and now the former great caoutchouc forests of Peru are almost decimated. I am reliably informed, however, that there is an almost inexhaustible supply of caoutchouc in the little-known regions about the Upper Madeira. In the near future, gatherers must look to Bolivia for their supply of this gum. It is understood that a strong effort will be made to prevent their destroying the trees, as in Peru. Experts state that the tree can be tapped in a special manner and its gum extracted year by year for a long term before it becomes exhausted.

A serious obstacle to the successful production of rubber on the head waters of the Madeira is the system of taxation now in effect. Rubber merchants are charged 23 per cent ad valorem export duty by the State of Matto Grosso. The State of Amazonas also charges 23 per cent duty.

GUTTA-PERCHA.

The supply of balata in sight here is so great that no fears of a shortage need be entertained for years to come, if the business is properly and intelligently handled. Experts report that there is not a tributary to the Amazon which does not show forests of this tree upon its banks.

As one result of my previous report on this subject,* three syndicates (English, Belgian, and German) are now in the field to produce gutta-percha. The unhappy feature of the situation is that no American syndicate has so far put in an appearance.

The importance of this new industry in Brazil may be realized when it is known that the market price of balata is equal to that of the best rubber and the cost of production is less than one-tenth that of rubber.

The balata fields of the Guianas and Venezuela are said to be nearly exhausted, which makes the discovery of the supply on the Amazon of the utmost importance to the commercial world.

Another advantageous feature in connection with the production of balata is that it does not necessitate the risk of life attendant upon the gathering of rubber. The balata grows upon high ground, as well as on the margins of the swampy streams, where the fevers lurk. It is a common saying here that every ton of rubber from the upper river costs two lives. This can never be said of balata, for men may work at this industry with no greater risk than usually attends any labor in the Tropics; and four men will gather as many kilograms of balata per day as thirty men can obtain of boracha.

K. K. KENNEDAY,
Consul.

PARA, *November 3, 1902.*

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*ADVANCE SHEETS No. 1418; CONSULAR REPORTS No. 265.

AGRICULTURAL BANKING SYSTEM IN BAHIA.

The necessity of having banks which will advance money on crops, either in the field or in storage, or will loan on real estate or chattels, has become so manifest throughout Brazil, particularly in States that rely upon agriculture, that the State of Bahia has taken the matter in hand and, by recent legislation, has granted special privileges for the establishment of such a concern.

The law, as passed, is as follows:

I. To the bank founded in this State for the purpose of loaning to agricultural interests or industries connected therewith, the State government is authorized to concede the following favors:

1. It will guarantee 7 per cent interest on the notes of the bank, which must be issued in accord with the federal laws.

2. It grants exemption from tax on capital and earnings of the bank or on banking operations of whatever character.

3. It grants exemption from tax on transfer of property obtained by foreclosure of mortgage or received in payment of loans.

4. It grants exemption from State stamps and other expenses on transactions of the bank when the value of foreclosed property or the adjusted price does not exceed the sum of their integral payments.

The notes issued by the bank will have like privilege with State or national bonds for use as guaranties or bonds in State and city departments and in courts, no other notes having this privilege.

II. The capital of the bank is to be not more than 5,000,000 milreis (market value, $120,000).

III. To aid in the establishment of the bank and to enlarge or develop its operations, the State has the privilege to subscribe not to exceed four-fifths of the capital, applying for this end the product of the impost of 1 per cent upon the official value of agricultural exports, authorized by law of September, 1901, which will be in effect until the amount collected reaches the sum of 4,000,000 milreis (market value, $106,000).*

1. The call for subscribed capital will be regulated by the government.

2. The dividend which should accrue to the State for the amount subscribed is to be applied to creating a reserve for the bank.

IV. Loans can be made only upon giving one of the following guaranties:

Mortgages on agricultural property and accessories, including live stock, farms in actual use as such, and city houses, the loan not to exceed 50 per cent of the value of the property mortgaged.

(*a*) On movable or moving machinery, instruments for farming, and hanging fruit.

(*b*) Upon products stored upon the farm of the borrower, up to 33 per cent of value.

(*c*) Upon products stored in a legal warehouse or commercial market, 60 per cent.

V. Mortgages shall not exceed 100,000 milreis ($2,400); chattel mortgages, according to letter *a* of Article IV, 30,000 milreis ($720).

When the mortgages exceed 50,000 milreis ($1,200), the realty given as security must be three times the value of the loan.

VI. Mortgages shall run for a maximum of thirty-three years and chattel mortgages three years.

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* Reductions throughout report were made by the consul.

VII. The interest on mortgages shall not exceed 8 per cent, payable semiannually, and the amortization shall be that stipulated in the contract, in accord with the extent of the time of the loan.

Besides interest, the bank may charge, once only, a commission not exceeding 1 per cent on the sum total of the loan.

VIII. The interest on chattel mortgages and liens shall not exceed 9 per cent.

IX. Loans on mortgage made by the bank must be delivered at least 20 per cent in legal tender and the balance in notes of its emission.

X. Loans made by the bank must be destined to use in agriculture, grazing, or allied industries.

XI. For negotiation of any loan, it is essential that the officers of the bank verify the profession of the borrower, in order that Article I of this law may be faithfully observed.

The bank may negotiate with syndicates, cooperative agricultural bodies, etc., in accord with the regulations of this law.

XII. Besides the operations already mentioned, the bank can undertake the sale of agricultural and allied products, and also purchase apparatus, machinery, and utensils for the industries for which this law is created, receiving for these operations not more than 2½ per cent commission.

XIII. For loans on chattel mortgages mentioned in Article IV, letters *a* and *b*, other than the provisions established by law, the indorsement of one or more capable farmers or some reliable guaranty is necessary.

XIV. Notes of the bank may be issued in series of 1,000,000 milreis ($24,000) to five times the capital realized, and this amount may be increased to ten times the capital, subject to previous authorization of the State government.

The interest of these notes will be 7 per cent per annum, and a sinking fund will be created in accordance with the laws already enacted.

XV. Payments on mortgages shall be made in money, except payments in advance, which may be made in money or notes of the bank at par and without discrimination of issue.

XVI. The administration of the bank will be confided to three directors elected by the stockholders.

XVII. There shall be an auditing committee elected by the stockholders.

XVIII. The bank will be under the supervision of the State government, which will be represented by an inspector who will be empowered to combat any operation which he judges inconsistent with the ends of the institution, bringing such facts immediately to the attention of the government.

XIX. Of the net gains of the bank, 5 per cent shall be taken for the establishment of a reserve fund.

XX. The dividends of the bank to its shareholders shall never exceed 10 per cent, the excess being divided as follows: Two-fifths to reinforce the reserve, one-tenth commission to the administrators (this sum never to be in excess of their salaries), and the rest to be divided proportionately between those who have borrowed from the bank, the amount being credited to their accounts.

By net profits mentioned in this law are meant those actually realized.

XXI. In case of dissolution of the society, after paying all obligations and the capital of the stockholders, the remainder shall go to the State.

In accordance with this law, the Bahia Agricultural Society has issued a prospectus inviting subscriptions to the amount of 1,000,000 milreis (about $24,000) for the founding of a bank to be called "Credito da Lavoura."

Committees have been appointed to solicit subscriptions in the different sections of the State, and it is said that they are meeting with considerable success. The first call of 10 per cent on subscriptions will be made at the end of November, and it is expected that the bank will begin operations early in 1903.

During the year of 1903, 10 per cent will become due and thereafter 10 per cent per year until the subscribed capital is realized. The plan of the bank seems to be on a good business basis, and, if the institution is properly managed, it can not help but be of great service to agricultural interests, and at the same time give good returns for the private capital invested.

H. W. FURNISS,
Consul.

BAHIA, *October 21, 1902.*

BIDS FOR LIGHTING GUAYAQUIL.

Consul-General Thomas Nast transmitted from Guayaquil, November 12, 1902, translation of an advertisement by the municipal council, inviting tenders for lighting the city by gas or electricity. Mr. Nast said:

The tenders must be sent to the secretary, municipal council, of this city, not later than February 12, 1903, under sealed envelope. It is to be hoped that American capital will try to get the contract. Letters are frequently received asking for investment opportunities in this country.

The inclosure reads:

LICITATION.

The municipal council, in session on the 6th instant, decided to invite tenders for the lighting of this city under the following terms:

1. The city to be lighted by gas or electric light, or by both, within limits provided for in the contract.

2. The lights to be located 3.5 meters (3.8 yards) above the surface and 1 meter (1.09 yards) from the houses' front (portales), and not be farther apart than 35 meters (38.1 yards).

3. Each light to be of 15.4 candlepower (international unit); at the intersection of the streets in the central part of the city, the lights to be of 80 candlepower, located at a height of 6 meters (6.5 yards).

In all cases, the lights used in the streets shall be arc lights.

4. The council guarantees that it will take at least 1,400 lights during eleven hours daily—also 50 lights of 80 candlepower—for which payment will be made monthly.

5. The municipal engineer and the inspectors of lights shall take the usual measures to test the quality of the lights in any part of the city.

6. The gas or electric conductors must be laid underground, and of the most modern system and size.

7. Each house supplied with gas must be provided with the usual key and register located at the entrance or on the sidewalk; in the same manner, switchboards

will be located at each section of the electric conductors and opposite each house, so that in case of fire or other cause of interruption of the current at that point, there would be no loss of time and the service in other parts would continue uninterrupted.

8. The company shall have the free use of the streets, lands, and municipal water for all that pertains to the service, and the municipality binds itself to obtain from Congress the free entry of all materials needed for the installation of the service.

Sealed offers will be received until February 12, 1903.

Address: The Secretary, Municipality, Guayaquil, Ecuador.

OPPORTUNITIES FOR INVESTMENT IN ECUADOR.

In reply to a letter from a resident of Minnesota,* Consul-General Thomas Nast wrote from Guayaquil, November 17, 1902:

There are plenty of good opportunities in Ecuador for the investment of money. Corporations are not required to secure special privileges or concessions to transact business, unless it be to establish a bank, in which case it is necessary to conform to the banking laws laid down by Congress, viz, to have a reserve of three-fourths of the amount of the authorized capital in metallic coin, to guarantee the note issue, etc. There is a good opening for a bank here.

The Government has refused to grant concessions of land to foreigners in the Napo or Orient, where most of the land is occupied by wild Indians, the chief reason being because the territory is in dispute with Peru; it has also refused rubber concessions in the forests, because of late years the trees have not been properly bled, but cut down.

There is no limit to the land that a corporation may hold.

Rubber.—The planting and growing of rubber trees is considered one of the best investments; but very few have been planted, on account of the large supply of wild rubber and the fear that some artificial matter might be discovered to take its place.

The Congress of Ecuador has decreed that the executive power shall adopt measures to prevent the extraction of rubber from the forests of the western slope of the country during a period of ten years, permitting the exploitation only of the trees cultivated.

The Government will pay a premium of 20 cents (9.7 cents gold) for each tree planted after the promulgation of this decree, provided that there are not less than 500 trees at least 1 year old on the plantation. This decree goes into force on April 1, 1903.

Natives engaged in rubber cultivation will be exempted from military service in time of peace.

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* To whom ADVANCE SHEETS have been sent.

Export duties.—There is an export duty on cacao of about $2.50 ($1.21 gold) per quintal (100 pounds); on rubber, about $5 ($2.42 gold) per quintal; on ivory nuts, less than 10 cents (4 cents gold) per quintal.

There is practically no ebony or mahogany in this Republic, but many other beautiful woods are found.

Banking and currency.—There are two good banks here, and drafts on the United States and Europe are easily negotiated. Ecuador possesses a gold standard, and exchange is always practically the same, viz, about 50 cents United States currency to the dollar (sucre) of this country. The gold coin called "condor" is equal to 10 sucres.

Taxes.—Taxes on real estate are very low, viz, $1 per $1,000, and the assessment is generally about one-half or three-fourths of the value. Property rights are respected.

Health.—Ecuador is reasonably healthy, especially in the country, the prevailing diseases being malarial fevers. One soon gets acclimatized. In Guayaquil and along the coast, the climate during the wet season (from January to May) is very unhealthy. The diseases on the coast are "paludic," "pernicious" fevers, and dysentery.

Minerals.—From all I can learn, there are few minerals to be found here. At present, there are two gold-mining companies; and it is reported that the railway company has discovered a coal mine. These three companies are American.

Cacao.—The chief industry of Ecuador is cacao growing, which is extremely profitable. The world's supply of cacao amounts to some 90,000 tons, and of this Ecuador produces 27,000 tons, or about one-third of the total. Land can be obtained at about $1 per acre. It requires about five years to bring a cacao estate into bearing, at a cost of 15 to 20 cents per tree. The trees yield on an average 1 pound each. For a plantation of 100,000 trees, it costs to bring into bearing, say, $17,500. At the end of five years, it is worth $50,000; at seven years, $75,000; etc. The production of 100,000 trees would be 100,000 pounds, worth $11,000 at present prices. The cost of putting this quantity on the market, including labor, etc., would be $4,000, leaving a net profit of $7,000. Estates are easily sold at the above figures, and if a capitalist can wait for results for five years he is sure of a good income. In the meantime, "catch crops," such as rice or corn, can be grown on the same ground, which is so fertile that for the growing of rice, etc., it is never necessary to plow; a hole is simply made with a machete and the seeds put in, and good returns are obtained.

NAVIGATION OF THE RIO DE LA PLATA.

The Rio de la Plata, the Rio Parana, the Rio del Paraguay, and the Alto Paraguay are the most important rivers traversing that section of South America from Quiabar, in the State of Matto Grosso, Brazil, extending through Paraguay, Argentina, and Uruguay. The traffic on these rivers is exceedingly large. It is almost entirely in the hands of one company, which fixes freight rates. In order to effectively extend our trade to this section, we should have barges, such as those used on the Mississippi and Ohio rivers, drawing 3 or 4 feet of water, or even 5 feet, and carrying freight of from 1,000 to 2,000 tons. A couple of these barges, together with tugs of considerable horsepower, could carry shipments from the State of Matto Grosso, in Brazil, and from Asuncion, Paraguay, to Rosario (the highest river port in the River Plata), or to Buenos Ayres, where they could be placed in ocean vessels. The barges would bring back merchandise from the United States.

To profitably transact the large volume of business in these two Republics, it is essential to have cheap freight rates. From 2,000 to 10,000 tons could be sent down by the barges each trip. Brazil is rich in rubber, hides, etc., and Paraguay in quebracho and other hard woods, as well as in hides, preserved meats, etc.

These countries use quantities of fence wire, windmills, and salt—also agricultural implements, machinery, and cotton goods—and with cheaper freights United States products could compete with any manufactures in the world. As direct transshipments could be made from ocean vessels, a heavy expense would be avoided and freight could be booked through from New York to the point of destination, or vice versa. The charges on some products are almost a third more from Asuncion to Buenos Ayres than from Buenos Ayres to New York.

I am informed that it is impossible to diminish the present freight rates on this river, as the boats are subjected to heavy expenses and carry only from 400 to 1,000 tons. They have large crews, the captains receiving $125 gold per month and the chief engineers $100 to $120. I have also been informed that these boats were constructed eighteen or twenty years ago, and their hulls are of iron and steel.

The fuel consumed by boats plying between Asuncion and Buenos Ayres is principally coal, and I understand that the Mihanovich Steamship Company has an arrangement for a supply at $6 per ton, which is imported from Europe. The boats that run on the

Upper Paraguay consume hard wood, which renders good service and costs from $9 to $11 in United States currency per 1,000 pieces.

The points of difficulty on the river between Asuncion and Buenos Ayres are the pass of Angostura, which in seasons of exceptional drought sinks to 7 feet of water; there is also a spot in the River Parana which sinks to 6 feet 3 inches on exceptional occasions. The boats plying between Buenos Ayres and Asuncion usually draw about 7 feet of water when light, and when loaded heavily 10½ feet. The distance is about 1,000 miles, and from Asuncion to Corumba, in the State of Matto Grosso, about the same, making a total of 2,000 miles. The current of the river is 2½ to 3 miles an hour.

In the Alto Paraguay, there are four difficult passes between Asuncion and Concepcion, but a boat drawing 5 feet of water could easily pass them. One of the principal sources of income for these barges is the carrying of live stock. The usual charge for freight is from $3.25 to about $5 or $6 gold per ton from Asuncion to Buenos Ayres, and from Concepcion and Corumba, from $7 to $10 gold per ton.

Importers of merchandise from the United States and exporters from Paraguay to America inform me that they could guarantee such boats from 5,000 to 10,000 tons per month, if they could obtain freight rates at $1 or $1.25 United States gold per ton.

JOHN N. RUFFIN,
Consul.

ASUNCION, *October 28, 1902.*

AMERICAN CAPITAL IN CANADIAN BANK STOCK.

Another notable instance of the disposition of American capitalists to invest in Canadian enterprises is shown in an offer on the part of an American syndicate to take 5,000 shares of the stock of the Royal Bank of Canada at $250 per share.

The syndicate is composed of some of the most prominent bankers and capitalists in New York and Chicago. The price offered is much in excess of the present market value of the stock, which has recently been quoted at about $185 per share.

The directors of the bank have accepted the offer, subject to the approval of the shareholders. If the sale is approved, new stock will be issued to the members of the syndicate, the bank having been authorized at the last session of Parliament to issue $1,000,000 of new stock.

According to the report to the Canadian Government on October 31, 1902, the total assets of the Royal Bank of Canada amounted to $20,216,964; the present capital stock, fully paid, is $2,000,000, and the surplus $1,700,000. The bank now has a branch office or agency in New York City, and the management expects to soon open an office in Chicago. The remaining $500,000 of unissued authorized capital stock will be offered to the shareholders pro rata, presumably at an early date.

The Royal Bank of Canada was, until about two years ago, known as the Merchants Bank of Halifax. The name was then changed to prevent confusion with the Merchants Bank of Canada, which has its head office in Montreal.

JOHN G. FOSTER,
Consul-General.

HALIFAX, *December 11, 1902.*

BEET-SUGAR MANUFACTURE IN ONTARIO.

The first sugar from sugar beets grown in Canada was turned out last week by the Ontario Sugar Company, Limited, at the company's plant in Berlin, Ontario. This company was established in 1901 for the purpose of making sugar from sugar beets, and started the erection of a plant about six months ago. The factory cost about $600,000 and has a daily capacity of 600 tons of beets. When in operation, 100 tons of coal and 40 tons of limestone are used every twenty-four hours. The factory will employ from 250 to 300 men. The main building is of five stories, 323 feet long, with cooperage and machine shops and seed and engine houses. There is also a pump house on the Grand River, 2,200 feet away, with a capacity of 5,000,000 gallons daily. There are three wagon and two railway shops, each 350 feet long. There are now 7,000 tons of beets stored. Great interest is taken in this new plant, the first of its kind in Canada.

In addition to the production of beet sugar, the industry is giving rise to factories for the working up of by-products. Recently, letters patent were granted incorporating the General Distilling Company, Limited, composed of well-known capitalists of Toronto and Walkerville, Ontario, for the purpose of working up the sirup which is a by-product of beet-sugar manufacture into an alcohol for use for mechanical and art purposes. The factory will, it is stated, be built in Toronto. The company is capitalized at $600,000.

E. N. GUNSAULUS,
Consul.

TORONTO, *November 11, 1902.*

POWER WORKS FOR VANCOUVER.

Consul L. E. Dudley, of Vancouver, November 25, 1902, says:

The following description of the work being done to furnish electric power for this city and the city of New Westminster, 12 miles distant, may prove of interest. The article is from the World, a daily paper published in this city:

The object of the company is to join the waters of lakes Coquitlam and Beautiful by a tunnel 2 miles long, and provide a permanent source of electrical production. The power will be supplied to Vancouver and New Westminster for all purposes to which electricity is applicable. The dam is 405 feet above the sea level and it will be 300 feet long, 50 feet high, 35 feet at the base, and taper to 8 feet on top. In seeking for a location where the dam could be set on solid rock, several preliminary shafts were sunk. When the proper locality was found, tunnels were run under the stream and the site thoroughly prospected over the bed rock. In doing this alone, 500 feet of tunnel were run. This is only one sample of the thoroughness with which the company is doing everything. At present, a temporary dam is being put in, so as to enable the company to carry off the water by flume while the permanent dam is in course of construction. The work of this new dam is in itself interesting to watch. Huge trees, veritable veterans of the forest, are picked up like toothpicks and dropped just where wanted. It is expected that this dam will be completed in a couple of weeks. Besides this work, the company has a gang of men employed cutting a terrace out of the face of the rock to form a site for the power house. It will be so situated that even if the big dam did give way, the rush of the waters would not affect it.

Outside of the company's fifty-odd men, there are about 150 employed by the contractors in clearing the portion that is to be submerged, which will make the lake surface 500 acres. The intention is to keep the water always 20 feet above the outlet pipe from the big dam. From the dam down to the power house is a drop of 400 feet in 1,600, so that no one need be an expert hydrostatist to figure out that the water will not come down sluggishly. Other men are working on the tunnel which will bring the waters of Coquitlam Lake down to Lake Beautiful. In this tunnel, the men are in 150 feet and are now boring through solid granite. It is understood that the men at the Coquitlam end are in about the same distance. The tunnel, when completed, will be 2.5 miles long, and will have in that distance a drop of 32 feet.

At present, all the hauling is done on the tramway by a cable line, but an electric locomotive has been ordered and is due to be delivered here on December 15. This will not be used on the first section of the road from the inlet up, which is a 58 per cent grade, but will be employed above, to haul the rock out from the tunnel. The transmission line, for which two big gangs of men are now cutting a road through the forest, will cross the inlet at Barnet. A steel cable will cross the inlet, copper being too ductile. On one side there will be a steel tower to receive the cable. The distance across is nearly half a mile.

SARDINES IN BRITISH COLUMBIA.

The attention of a gentleman from the East visiting Puget Sound three years ago was attracted by the large number of small fish that were said to be sardines. He sent for an expert and had a few canned in the regular way. The result was the establishment at Port Townsend of a cannery, the output of which in 1901, its first year, was 60,000 cases. It is estimated that the pack of this year will reach 175,000 cases. It is claimed that these are superior in quality to sardines canned on the Atlantic coast, and equal to the foreign product.

It is said that plans are being considered for the erection of a much larger plant on Puget Sound. The same fish exist in great abundance in waters in the immediate vicinity of this city. The duty imposed upon cotton-seed oil has lately been removed by the Canadian Government, so that sardines may be packed here as cheaply as on Puget Sound, and they would find a ready market in this Province and as far east as Winnipeg. It seems to me that there is an excellent opportunity for the establishment of such an enterprise in this city or vicinity. The country tributary to Vancouver is rapidly filling up, and there will be an increasing demand for such products.

There is a cannery in this city which proposes to run all the year. After the salmon season is over, it intends to can, dry, or salt other fish, and there has been a suggestion that it extend its operations to the canning of sardines, although I believe no action in that direction has yet been taken.

It seems to me this is an opening well worth the attention of some person with moderate capital.

L. Edwin Dudley,
Consul.

Vancouver, *November 28, 1902.*

EXPORT OF TIMBER FROM BRITISH COLUMBIA PROHIBITED.

In Advance Sheets of Consular Reports No. 1470, issued October 16, 1902,* a report of mine was published regarding the lumber industry in British Columbia, in which I made the statement that an export duty had been placed upon timber cut upon the public lands of this Province. The information upon which I made that statement was derived from the newspapers of this city, but my attention has since been called to the fact that it is not an export duty, but an absolute prohibition placed by the Government upon the export of timber cut upon lands owned by the Province.

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*Consular Reports No. 267 (December, 1902).

Timber off all unsurveyed and unpreempted Crown lands can be cut either under 21-year leases or annual licenses. During the session of 1901, an amendment to the then existing land act was passed, reading as follows:

> All timber cut from provincial lands must be manufactured within the confines of the Province of British Columbia, otherwise the timber so cut may be seized and forfeited to the Crown and the lease canceled.

The point was raised that the above only applied to leases, not licenses. In July, 1902, an order in council was made to make the above restriction apply to licenses.

L. EDWIN DUDLEY,
Consul.

VANCOUVER, *November 14, 1902.*

GOVERNMENT IRON FOUNDRY IN JAPAN.

Consul S. S. Lyon transmits from Kobé, October 23, 1902, clipping from the Chronicle, an English journal at that port, as follows:

THE IMPERIAL IRON FOUNDRY TO BE MADE INTO A JOINT-STOCK COMPANY.

The official draft of the law which is to govern the transformation of the Imperial Iron Foundry into a joint-stock company has been published. The company will be allowed several special facilities. It is to succeed to all the rights and obligations of the Imperial Iron Foundry, the capital being made up of the 20,000,000 yen ($9,960,000) which has been invested by the Government in the foundry and works connected therewith. This sum will be invested by the Government in the form of shares, while 7,500,000 yen ($3,735,000) will be raised by public subscription, the face value of each share being 100 yen ($49.80). The directors are to be elected from among those shareholders holding fifty or more shares, six candidates to be recommended to the Government, who will duly select three. No dividend will be paid to shareholders without the approval of the Minister for Finance. The approval of the same minister must be obtained in the event of the company wishing to raise a loan or to issue debentures.

The Government is to receive its dividend out of the surplus remaining, after a dividend of 8 per cent has been paid to the shareholders. * * *

The Government will guarantee the payment of 6 per cent interest on the capital subscribed by the public for fifteen years from the formation of the company, and, in addition, will advance a sum not exceeding 50,000,000 yen ($24,900,000) free of interest, in case further capital should be required. The money so advanced will be available for eleven years, and will have to be repaid in twenty yearly installments. Moreover, the Government agrees to buy from the company all the iron and steel required for national purposes. The company will be exempted from the imposition of business tax for fifteen years, commencing from the year following that of the flotation.

It is stated that at about the time of the appointment of the present director of the Imperial Foundry, a proposal was made to float the business as a joint-stock company, but it met with strong opposition and was dropped. Subsequently, a committee was appointed to go into the matter. First of all, the committee considered the question as to whether the foundry should be continued as a Government business or be transformed into a private company. The latter course was proposed. It will be seen that the present proposal practically amounts to a transfer of the undertaking free of cost, and the Mitsu Bishi is said to have been the means to this end.

PROGRESS OF JAPANESE RAILWAY ENTERPRISE.

In 1870, when the Government of Japan decided to construct a railroad connecting the old and the new capital—Kyoto and Tokyo—it accepted British assistance for the inauguration of the work. Although the project was devised to connect the capitals, the necessity for having railway communication between the present capital and its seaport, Yokohama, and also between the former capital and its seaport, Kobé, caused these two lines to be built before carrying out the plan for the main trunk line. The Satsuma rebellion, which broke out in 1876, caused a suspension of activity in railway construction, and it was not until 1890, twenty years after the inception of the plan, that the railway connecting the former and the present capital was opened for traffic.

These first lines were constructed and equipped by the British, and of course followed British standards throughout, and on the main island, where these roads are, no other type than that of the English engine was even thought of for many years. In Kiushu, the large island at the south, the first railroads were built about 1881 and in the Hokkaido, at the north, at nearly the same time, the Germans constructing and equipping the former, while the latter were in charge of American engineers, who procured all their supplies from the United States. Three standards of railway equipment were thus introduced into the Empire, the British having the advantage of being first in the field and of being established in the island, which, both from its size and from its including nearly all the important commercial cities of the Empire, would require much the greatest mileage.

There was no marked change in the conditions thus introduced into Japanese railway affairs, the standards of each nation continuing to predominate in the island where they were introduced until 1897, when 125 locomotives were ordered from America for the imperial and Nippon railways in the main island, the Nippon being the most important of the private railway companies. Since that time, the importation of English locomotives has never greatly exceeded that of American, and now more than 500 locomotives of American manufacture are in daily use in Japan, where the entire number of all kinds is not far above 1,200. Considering the great advantage which England had at the start, this is a very good showing indeed, and it is especially creditable in view of the prejudices our manufacturers have had to overcome.

Of the private lines, the Kiushu and the Sanyo railways are next in importance to the Nippon, and these were the first after the Hokkaido to order locomotives from America. A representative of the Sanyo Railway stated that the principal reasons for preferring American engines are the lower price and shorter time required for filling orders. He added that, at first, the engineers being accustomed to the English locomotives, and not understanding the management of the American engine, found that the latter consumed more coal; but since the drivers have become accustomed to the use and treatment of the American locomotive, they find no material difference in this respect. The tire of the American locomotive has proved more durable, and they recognize advantages in the sight-feeding lubricator, the air valves for the cylinders, and the more comfortable driver's cabin. On the other hand, the boilers are more apt to leak than in the English engine.

On Kiushu Island, about 50 German locomotives were supplied at first, but the use of the German engine in Japan practically stopped there, as very few have been brought from that country since, and the small volume of business they still hold in this line is said to be due to the employment of German engineers at the Government iron foundry at Wakamatsu.

From 1897 to 1901, the Government railways of Japan permitted tenders for building their locomotives only from British makers, because they were persuaded of the superior qualities of the English engines; but the Schenectady Works of the American Locomotive Company, having sold some engines to private railways in this country, were enabled to demonstrate to the Government the merit of their product, and in 1901 they were added to the list of approved makers.

Although in competition with five British firms, the American Company was able to meet all the stern requirements of the Government specifications and break down the British monopoly of four years by taking an order that same year for 30 locomotives. According to Japanese law, no tenders will be received for locomotives on the imperial railways, which include nearly one-fourth of all the railways in the Empire, except from makers on the approved list, but the party making the lowest offer received must be awarded the contract. Since 1898, more than 155 locomotive engines from the Schenectady Works have been sold in Japan; the Baldwin Locomotive Works have sent 255 engines in the past ten years; and the Brooks, Pittsburg, and Cooke Works have also a number of engines running on Japanese railroads and doing such satisfactory work that the company has this year been added to the approved lists of several roads, heretofore confined exclusively to tenders from British makers. This gives American manufacturers an opportunity to compete with British locomotive builders; but just at present the unusual demand for steel and its high price in the United States is a serious handicap.

On October 16, 1902, tenders were opened for five lots of six locomotives each, with spare parts, for the Imperial Government railways. It was a kind of international competition, English, German, and American firms being among the bidders. The lowest bid—$306,574.90—was put in by Okura & Co., a Japanese firm which represented Dubs & Co., of Glasgow, and the Rogers Works, of America. The bid of Okura & Co. having been accepted, the Government had the opportunity of choosing between the two manufacturing firms named above, and the contract was awarded to the Glasgow works.

Many of the sales made by American firms during the last four years are due to the energetic work of Mr. Willard C. Tyler, who was sent here by the American Locomotive Company. This confirms what has before been emphasized in my reports, viz, that if America is to compete successfully with Europe in the effort to secure this market, it is necessary that authorized representatives of manufacturing firms should come into actual, personal contact with these people, learn their needs, and show them the superior quality or cheaper prices of American goods.

E. C. Bellows,
Consul-General.

Yokohama, *October 23, 1902.*

THE OSAKA EXHIBITION.*

Consul S. S. Lyon transmits from Kobé, November 13, 1902, clipping from a local paper, which reads in part:

> This exhibition will be by far the largest in scope and plan of any ever undertaken by the Government, and under the roofs of the fine buildings which are being erected will be amassed the most extensive collection of manufactures and products of the Empire ever yet seen. A special feature is the admission of foreign exhibits, it being the desire of the Government to do everything possible in order to strengthen the commercial interests and relationship of Japan with other countries.

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*See Advance Sheets No. 1283; Consular Reports No. 260.

Two separate areas are to be occupied by the exhibition—one at Tennoji, Osaka, and the other at Sakai; that at the latter place being devoted to the aquarium only. The premises at Osaka occupy 630,000 square feet, while the aquarium is to cover a space of 60,000 square feet. Many more firms than were originally allowed for will exhibit, and all the goods sent will be selected ones only, so that the exhibition will furnish a unique opportunity for those desiring to inspect samples of first-class Japanese manufactures and products. Many of the firms whose spaces have had to be reduced in consequence of the lack of room in the main hall have decided to erect their own buildings, which will form an annex and will be totally different from anything undertaken at similar exhibitions in this country.

Bazaars, stalls, and kiosks are to be erected by the several prefectures for the sale of goods produced therein. Foreigners who visit the exhibition will therefore be enabled to make purchases from all parts of Japan and choose innumerable souvenirs which might otherwise necessitate long and expensive railway journeys. The Formosan government will occupy a separate building, in which will be exhibited the products of that island. There will also be a special hall—of Formosan architecture—in which will be given musical entertainments entirely under the direction and management of Formosans.

In the fine-art hall will be found works designed and executed by the leading Japanese artists of the day, which will include paintings, brass work, sculpture, pottery, etc.

Japanese restaurants and tea houses will be placed in various convenient positions. There will be an athletic and recreation ground where Japanese sports in old and present style will be performed daily, with many other entertainments. Dances and music as performed in various centers throughout Japan will be provided; visitors will, if they wish, be enabled to enjoy the novelty which has proved so popular in England and America—"shooting the chute"—a water chute being in course of construction; a big tower is being erected from which visitors will be enabled to obtain a fine view of the city of Osaka; and military and other bands will perform daily and nightly. The exhibition itself will be closed during the evenings, but the grounds are to be brilliantly illuminated by means of electricity, and here most of the entertainments will take place. Various special facilities for seeing the neighborhood are to be offered to holders of exhibition tickets.

Foreign visitors will be well looked after in every way. A hundred and fifty students from the Foreign Language School are to act as guides.

The expense of the exhibition, apart from the cost which is being defrayed by the forty-seven prefectures for their respective exhibits, is estimated at 1,093,973 yen ($540,200). Three million Japanese visitors and a very large number of foreign visitors are expected.

The exhibition, apart from its general interest, will be an event of great national importance, and it bids fair to be a huge success.

TRANSIT OF GOODS THROUGH VLADIVOSTOCK.

Commercial Agent R. T. Greener sends from Vladivostock, September 20, 1902, translation of an order from the Ministry of Finance concerning the conditions for the transit of merchandise through the port of Vladivostock, as follows:

According to the decision of a special committee on transit of foreign goods through Vladivostock into Manchuria, the Minister of Finance has deemed it necessary to permit—

(1) The transportation of foreign goods free of duty through Vladivostock into Manchuria by railroad only.

(2) The following goods are not allowed free transport:

Grain.
Potato flour and starch.
Vegetables.
Tobacco.
Raw honey, molasses, and sirups.
Confectionery.
Spirits and liquors.
Grape wines.
Honey, porter, and beer.
Fruit juice.
Vinegar.
Salt.
Salt meat, smoked, and polony.
Cheese.
Butter.
Tallow and grease.
Candles.
Prepared skins.
Leather goods.
Carpenters' and coopers' tools.
Wooden articles.
Pottery goods.
Porcelain goods.
Crockery goods.
Glass goods.
Mirrors and mirror glasses.
Pitch and tar.
Naphtha.
Naphtha products.
Turpentine.
Cosmetics.
Soap.
Gum elastic and gutta-percha.
Varnish.
Matches.
Cast iron.
Iron.
Tin.
Steel.
Articles manufactured from precious metals.
Copper goods.
Cast-iron goods.
Iron and steel goods (blacksmith work, boiler works, not specified).
Tin goods.
Wire.
Wire goods.
Steel and iron needles.
Cutlery.
Arms.
Scythes and reaping hooks.
Tools.
Lead and zinc goods.
Plumbing goods.
Machines and apparatus.
Weighing machines.
Musical instruments.
Vehicles.
Railway cars.
Stationery.
Netted wool.
Twisted wool.
Jute, hemp, and flax network.
Cotton materials.
Cotton materials, printed and stuffed.
Cotton velvet.
Ropes, hawsers, and strings.
Jute and linen bags.
Thick jute, flax, and hemp stuffs.
Linen and batiste.
Waxed and oil cloth.
Canvas.
Silk stuffs.
Fine silk goods.
Half-silk stuffs.
Friezed woolen bed covers.
Woolen stuffs.
Woolen stuffs similar to cashmere.
Woolen stuffs for fabric use.
Woolen carpets.
Turkish caps (fez).
Netted goods.
Cotton tulle.
Embroidery, laces, etc.
Embroidered stuffs.
Cloths.
Hats.

(3) Packages containing both free and dutiable goods are not admitted to free transportation.

TRAVELING ON THE SIBERIAN RAILWAY.

Consul S. S. Lyon sends from Kobé, October 16, 1902, clipping from the Kobé Herald, entitled "London to Shanghai via Siberia," as follows:

Prof. C. M. Lacey Sites, who recently returned to Shanghai from America by the Siberian route, writes:

"Rail connection is now complete to Port Arthur, except for the steamboat trip of five hours across Lake Baikal; and the trains run close to the wharves on both sides of the lake. From Irkutsk eastward, the old line is followed to a point somewhat east of China. The new line, branching to the south, enters Manchuria territory and brings up at a station called Manchuria. Here, the Russian railway proper ends and the Chinese Eastern Railway begins. The main line of the Chinese Eastern Railway strikes eastward, directly across Manchuria, to reach Vladivostock. At Harbin, however, the South Manchurian line diverges to the south through the rich valley of the Sungari and so to Port Arthur.

"Coming eastward it requires, by the daily train, nine days from Irkutsk to Port Arthur. This period is divided into three fairly equal sections by the division points, Manchuria and Harbin, where change of cars must be made and new tickets bought. There is a "train avec restaurant" which runs at present once a week, making better connection; but as yet it is only scheduled to run between Irkutsk and Manchuria. Between Irkutsk and Moscow, the through trains run only twice a week. It is therefore necessary to plan the connection or to allow for delay. My schedule of time was as follows: Berlin to Moscow, two days; Moscow to Irkutsk, eight days; Irkutsk to Port Arthur, nine days; add for connection, one day; total necessary, twenty days; add, for through trip, London to Berlin, two days, and Port Arthur to Shanghai, three days; total, London to Shanghai, twenty-five days.

"The service is an all-the-year service, and the ice-breaking steamers on Lake Baikal are supposed to keep up constant communication; but of course delays would be more serious in winter travel.

"Between the Irkutsk and Manchuria stations, one can travel 'first class,' although this means here about the same as second class in European Russia. Crossing the desert between Manchuria and Harbin, one finds the worst accommodation of the line. A third-class coach is labeled second class and reserved for first-class passengers. The 'differential' in the price of tickets does not soften the seats, but it improves the society. The coaches are of medium size and have only one pair of wheels at each end; this fact, with the paucity of springs, aggravates the roughness of the road. The seats, as in all transcontinental trains, run crosswise of the coach, leaving a passage way at one side, running the length of the coach. The two seats facing each other in each compartment, together with the two upper bunks which can be put in place, are amply broad and long for single beds. Of course, the traveler must provide his own bedding.

"From Harbin to Port Arthur there are, although no first-class, genuine second-class coaches of the omnibus type—that is, the compartments are not closed in, but the partitions extend above the upper bunks; and a party holding four tickets (usually three, or even two will suffice) can secure privacy by tacking up a steamer rug, or something lighter, across the open end. From Harbin south, for a day's journey, the track is the newest and roughest of the whole line, so some jolting must be expected. The entire Chinese Eastern Railway is so recently built—being, in fact, not yet formally open to traffic—that the ordinary traveler must be prepared to 'rough it.'

Long stops and plenty to eat, of fair quality but poor variety, may be predicted of the whole route east of Irkutsk, excepting one or two stretches of desert. However, everybody will find comfort in carrying a basket, with an auxiliary supply. Fruit and butter are almost unknown terms in Siberia and western Manchuria. The basket should contain at least jams and jellies, butter, tinned biscuit, lemons, sugar, tea, coffee, and cocoa, with an ample supply of napkins, for there is no chance to wash linen and much need to wash the enameled plates and cups which must also be carried, not to speak of knives, forks, and spoons. The one characteristic and indispensable requisite of the trip remains to be mentioned—a teakettle. Everybody has need of it, whether he go himself to draw boiling water from the vat which is found at every station or whether he send his servant to do it for him.

A small lamp or candles will also be found serviceable; the train in these eastern parts is illuminated only with candles, and these are distant and dim. Wash basins will be found convenient, besides the usual toilet outfit.

These observations do not apply, for the most part, to the road west of Irkutsk, especially if one travels first class. The through trains there are provided with dining cars. Even there, however, it is quite possible to make use of a lunch basket ad interim. Going west, it would be safer to provide the staples at Shanghai; but if there be time at Port Arthur, a first-class stock of European and American supplies can be found there.

West of Irkutsk, and in northern Europe generally, second class is good enough for anybody. In the rougher regions of the East, one will naturally choose the best accommodations to be had. In the following summary, the figures for rates west of Irkutsk include the extra charges for sittings or sleeper; east of Irkutsk, there are none such:

From—	Rates.	
	Rubles.	
Berlin (via St. Petersburg) to Moscow (second class)	56	$28.84
Moscow to Irkutsk (second class)	81	41.72
Irkutsk to Manchuria (first class)	26	13.39
Manchuria to Harbin (second class)	20	10.30
Harbin to Port Arthur (second class)	22	11.33
Total, Berlin to Port Arthur	205	105.58
Food, 20 days, say	60	30.90
Hotel rooms en route	10	5.15
Total necessary expense	275	141.63
Add for through trip:		
London to Berlin (first class), say	50	25.75
Port Arthur to Shanghai, say	35	18.02
Total, London to Shanghai	360	185.40

RAILWAYS OF INDIA.

It would be interesting to trace the development of the railways of India from 1845, when the scheme was first conceived by Sir Macdonald Stephenson, and from its inauguration by Lord Dalhousie, the governor-general of India, in 1850, by the construction of the first railway from Calcutta toward Delhi, but I shall only allude to the salient features of the system.

The policy adopted, as a rule, was for the government to guarantee a certain percentage of interest on the investment (usually 5 per cent) to British companies, the government having the option to take over the railways at the expiration of twenty-five years at cost value, and having during their construction a control of the expenditure and afterwards of the management.

Under this policy, there are now in operation in India about 26,000 miles of railways, with extensions and roads under construction, and a large proportion is owned by the government.

The policy has been to reduce the cost of transportation to a minimum, and the third class—the one generally used by the millions of natives—is the cheapest railway transportation in the world. At the same time, the railways are now paying a handsome revenue to the government. But the year 1900 was the first since the commencement of railways in India (over half a century) that showed a surplus to the state of revenue over expenditures, this amounting to nearly $225,000; and in the calendar year 1901 there was a similar record, the surplus amounting to over $3,680,000. This profit was arrived at by charging not only the expenses incurred in actually working the open lines of railway, including interest charges on the outlay, but also the interest on the capital expenditure on lines under construction, from which no revenue was obtained, and on the unexpended balance of the capital deposited by the companies, as well as the amount paid yearly in sinking funds and annuities for the redemption of the commuted capital of railways purchased by the state. Calculated on this basis, the results for the last two calendar years are shown in the following table:

Description.	1900.	1901.
Revenue.		
Gross traffic earnings:		
State railways	$76,039,973	$89,037,441
Guaranteed companies	15,330,931	8,776,191
Repayment of advances of interest from subsidized companies	103,374	147,592
Total revenue	92,274,278	97,951,524
Charges against revenue.		
State railways:		
Working expenses	38,015,264	42,927,976
Interest on total capital outlay in India and on debentures discharged	14,051,812	14,385,398
Interest on debt incurred in or created for the purchase of railways	3,143,088	3,627,935
Annuities in purchase of railways—		
Interest	11,421,257	13,626,778
Redemption of capital	1,925,680	2,841,119
Interest chargeable against companies on advances	1,911,063	1,950,538
Interest on capital deposited by companies	4,482,818	5,099,303
Guaranteed companies:		
Working expenses	7,927,224	4,123,586
Surplus profits, etc	965,369	579,804
Land and supervision	86,001	62,195
Interest	7,656,212	4,902,496
Subsidized companies (land and subsidy)	125,794	39,923
Miscellaneous railway expenditures	283,523	223,376
Total charges against revenue	91.995,105	94,330,232
Net gain	279,173	3,621,302

During the year 1901, 576 miles were added to the railway system of India, bringing the total mileage open at the close of the year to 25,373 miles.

Sanction was given during the year 1901 to the construction of 715 miles of railway, making a total of 2,126 miles sanctioned and still to be constructed. Many other lines have also been surveyed, for which sanction to construct has not yet been granted.

The total budget allotment for railways for the official year 1900–1901 was $2,596,094 and for the official year 1901–2 $2,932,969.

The actual capital expenditures during the calendar year 1901 on railways, for the financing of which the state is responsible, amounted, however, to only $2,621,875; the gross capital outlay on all railways in India during the same period being $3,176,281. This amount was spent in constructing 2,363 miles of railways, 576 miles of which were completed and opened for traffic during the year.

The increase in the rolling stock amounted to 563 passenger vehicles and 4,695 wagons. The gain in the volume of traffic in 1901 was the highest on record, but this does not necessarily indicate an increase in the demands made upon the rolling stock, as a large portion of the traffic comes to some railways from other lines, and consequently is carried in wagons belonging to these lines, and on others a large amount of the work done by wagons is performed away from the main lines. Speaking generally, the railways have now sufficient rolling stock for their immediate wants, and provision has been made for an increase to meet the further development of traffic.

The rolling stock at the close of the year 1901 amounted to 451 engines, 1,259 passenger vehicles, and 7,813 wagons.

The following statement shows the volume of the traffic carried and average distance during the last two years:

Year.	Open mileage.	Passenger traffic.		Goods traffic.	
		Passengers.	Average distance traveled.	Quantity.	Average distance.
		Number.	*Miles.*	*Tons.*	*Miles.*
1900	24,760	176,308,000	40.09	43,739,000	151.96
1901	25,373	194,749,000	40.42	44,142,000	159.99

The improvement of both passenger and goods traffic is the more remarkable as the comparison is made with a year (1900) in which there had been a large increase of traffic, due to abnormal causes, and the great advance made in 1901 points to the steady development of railways, and, consequently, of the country. The total number of all classes of passengers carried was 194,749,000. In the case of goods traffic, the tonnage increased in 1901 over 1900 by more than 10 per cent.

The working expenses on all railways, taken collectively, is shown in the following:

Year.	Working expenses.	Proportion of working expenses to gross earnings.
		Per cent.
1900	$48,413,120	47.88
1901	50,420,480	46.81

The advance in the total working expenses was the natural consequence of the large increase of the traffic.

The following table shows what the net earnings were during the last two years:

Year.	Net earnings.	Net earnings on capital outlay.
		Per cent.
1900	$52,095,680	4.99
1901	57,284,800	5.26

The railways of India, having for two years in succession been worked at a profit to the state, may now be regarded as having ceased to be a burden to the general revenues of the country, and the net earnings may be expected in future to be one of the most certain sources of revenue.

The following shows the average distance traveled by each passenger of the 194,749,000 carried, and the average rate charged in 1901:

Description.	Average distance traveled.	Average rate charged per mile.
	Miles.	*Cents.*
First class	102.8	2.2
Second class	95.52	.97
Third class	44.08	.39

The old trunk lines of India, uniting Madras, Bombay, and Calcutta, compare favorably in many respects with the first-class railways in the United States, though the equipment, locomotives, passenger coaches, etc., are much lighter and of different construction, and those in the United States have smoother tracks, owing to the heavier rails used and the larger number of sleepers per mile. They are, however, not as well finished as the best Indian roads in such matters as substantial fencing, bridges, station buildings, platforms, etc.; but the Indian railways are not provided with automatic block-working installations, and their termini and important stations have not the points interlocked and worked by electricity or air pressure, or by a combination of both. Our railroads are also much better equipped for taking coal and water on board expeditiously.

The foregoing information may be interesting to our manufacturers of railway material and supplies as showing the prospective demand for them in the future.

In making this report the exchange value of the rupee is taken at 32 cents, at which it has practically stood since the gold standard was adopted by the government of India two years ago.

R. F. PATTERSON,
Consul-General.

CALCUTTA, *November 12, 1902.*

OPENING FOR AN AMERICAN HOUSE IN BANGKOK.

With the desire to impress upon my countrymen the belief that a paying business in Bangkok awaits an American house, I recently requested an American business man, who is well acquainted with trade throughout the Far East and has carefully studied this particular field, to give me his views on the subject. These practical and eminently common-sense opinions are sent as a supplement to my report of November 27, 1901—"Need of an American business house in Siam."* He says:

> With reference to the opening of a house in Bangkok for the sale of American goods, I will try to set down some of the points which I think should be taken into consideration.
>
> Of the two methods which might be followed, *i. e.*, the forming of a company expressly for carrying on this particular work, or the opening of an office by one of the large trading companies in New York already doing business in other parts of the world, the latter would seem to be much the better plan, as the reputation of such a company is already well established; it is familiar with other foreign business methods, as well as with most of the lines of goods it would be called upon to handle in Siam; it would have its own methods of dealing with its home office, and would be on a better financial basis than another house which might attempt to do business in Siam alone. From what you have told me and from what I saw while in Bangkok, I believe with you that a house opened there by such a firm would pay, but it would be handicapped in some respects compared with the English or European houses already established, and would have to move somewhat cautiously at the start. According to my observation, practically every English or European house in the East is founded on some local business, in which the capital is controlled by their countrymen at home, the houses out here usually acting as managing agents. From this business they have by degrees built up their other and

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*ADVANCE SHEETS NO. 1255; CONSULAR REPORTS NO. 258.

smaller lines of trade, depending largely on the local agencies for their support. These local managing agencies appear to cover in Siam much the same things as in Burma, viz, rice mills, timber, steamship companies, etc., while in India they embrace coal mines, tea estates, cotton mills, jute mills, leather, mica, shellac, etc., and in Ceylon and in the Straits tea or coffee estates, jewel or tin mines, and shipping companies. Most of these local houses then take up every conceivable line of business from which there is a probability of profit in their particular district, such as life and fire insurance, cotton piece goods, machinery, etc.

An American house opening in Bangkok would of course not be able to start on a basis such as this, and would need to make a careful study of the local conditions and needs before beginning; and, while it might obtain considerable business from the Government, I believe it would be found that it would have to depend for the bulk of its trade on the natives of the country. This is one reason why close study should be made beforehand of the local market; for, while the Government and Europeans might demand the best articles in any particular line produced in America, the natives most likely would want something cheaper. This has been the experience, I know, of a number of houses in India, and the only American trading company there at present is working on this basis. I looked over their stock, both in Calcutta and Bombay, and while the material which the managers have imported is good and not cheap in appearance, like so much of the German product, it is not the best or most expensive that could be procured. Their business is almost entirely with the natives, with whom their goods appear to take well. The same thing is more or less true in regard to many of the English houses there.

I have left until the last one of the most important points in a business of this kind, viz, that of payment. Few if any of the firms in America, from which a trading company establishing itself in Bangkok would have to buy, would be willing to accept long terms of payment, and most of them, I am sure, would demand cash against documents in New York, except in exceptional cases, when part payments extending over thirty to sixty days would probably be accepted. It seems therefore that local terms would have to be left entirely in the hands of the Bangkok branch, the home office in New York making payments there, and drawing on Bangkok at intervals, the Bangkok branch covering themselves for the delay in payments at this end by increase in their prices. A system used to some extent in India is that of having payments of small orders from native customers guaranteed by a responsible brokerage firm, who charge a small commission for doing so, this being paid by the customers. I believe you said that you knew of no such firm at present in Bangkok, but no doubt some of the Chinamen there would be willing to undertake it. If a house for the sale of American goods were opened in Bangkok, and could start by obtaining control of the importation of American flour, which you told me is large, I see no reason why it should not pay well. It would certainly be a good thing for American business, and I am sure that all producers and manufacturers at home, for whose product there would be any call, would do anything within reason to assist the movement.

If what I have said here will be of any assistance to you in the solution of this matter, I shall be very glad, and I hope that if there is anything else that I can do in this connection you will let me know.

There is not in the whole of Siam at present one American house competent to consider a Government contract, to push American trade, or to represent American interests. Other nationalities are well represented; they are constantly seeking business, and are ready to consider openings at once. It can not be expected that business will seek Americans here any more than in other countries, and if it is sought out by the consular representative the three months' delay necessary for a reply from America will jeopardize our interests.

After four and one-half years' residence here I am persuaded that, for the right kind of people, there is an excellent business outlook in this country. A house to succeed in Siam must be of a standing that is recognized by the business world—one having connections in America, and whose name is a guaranty for its undertakings. It must be strong enough to consider any business proposition that may come up before it, and be able to attend to the lighter lines of trade as well. Such a house could secure the confidence of the Government of Siam at once and would be welcomed by it. To build up American trade in Siam, the house must be run on American lines and managed by American business men. We can not expect to succeed in business by farming out our interests to men of nationalities that have conflicting interests to be advanced. That a man has succeeded in business in America is no guaranty that he will succeed here, so different are the methods of carrying on trade in the Far East. One good man with business experience in the Orient is a necessity from the first. It would be well, indeed, if the house were connected with an American business already established in the Far East. It need not cut into the trade of those already engaged in importing from America, but might assist them and encourage others by facilitating shipping, easing terms of purchase, and offering the usual wholesale inducements at this end of the line. Such a house should be able to control, to its own benefit, to the advantage of the producers, and to the advantage of the local purchasers as well, all that America supplies to this market.

ELECTRICAL SUPPLIES.

The electrical development of the city of Bangkok during the last ten years has been wonderful. The Siam Electricity Company, Limited, has a capital of £150,000 ($729,975), plus 200,000 ticals ($100,000 Mexican, or $46,000 in United States currency). It has 17,000 lamps of 16 candlepower, a tramway track of 11 miles in operation, and 40 cars in use and others under construction; it is supplying electric power for various industries throughout the city, and is considering a line of automobiles to be run in connection with its tram line. The manager is now in America on business for his company. A request for another concession on the other side of the river is being pushed, and there are 26 private plants in the various mills, forts, and dock companies, and in the navy-yard of the city. The United States controls the market in this line now, and, with intelligent management, this trade could be greatly increased. In this connection the following table will be of interest, but it must be remembered that a large part of the goods therein credited to England and some credited to Germany are ordered from America through English and German houses who are represented here through their agents:

Electrical goods and apparatus imported from July 1, 1901, to June 30, 1902.

Country whence imported.	Quantity.	Value.	
	Packages.		
United States	435	$61,746	*$28,403
England	176	34,041	15,639
Germany	103	13,915	6,401
Italy	3	304	138
Singapore	25	4,873	2,242
Hongkong	2	216	106
Total	744	115,095	52,949

* Taking the mean value of the Mexican dollar as 46 cents.

FLOUR, ETC.

Such a house should be able to handle the entire import of American flour. This now amounts to anywhere between 125,000 and 175,000 sacks per year, and the demand is constantly increasing. And there is no reason why the very large interests in tinned goods should not, if wisely handled, result to the greater benefit of both the producers at home and the traders in this market. The house could also handle clocks, bicycles, sewing machines, lamps, and other popular lines.

COTTON GOODS.

The import of cotton and piece goods in this port amounted to about $5,000,000 Mexican ($2,375,000) last year, an increase of 40 per cent over the previous year. Of this, scarcely a dollar's worth comes from America; yet the only barriers are the present rate of freight and our demands for cash payments. The advantage that arises from the new lines of ships from New York to Singapore should go far toward overcoming the one and a local house could quite overcome the other. This is a trade that must constantly increase, for to produce these goods in a country where the raw material, the machinery, the labor, and the fuel must be imported is out of the question.

WATER SUPPLY AND SEWERAGE.

Here is a great city of 1,000,000 souls whose only water supply is rain during the seven months of the wet season and the foul and brackish waters of the rivers and the canals during the five months of the dry season—a city which, because of this, loses its citizens by thousands every year from Asiatic cholera. The one escape from this scourge is a public water supply.

Here is a great, flat city whose level in no spot throughout its area of 30 or 40 square miles rises 36 inches above high-water mark. During the high tides of October and November, all its natural levels are submerged. It has absolutely no system of sewerage, the construction of which would involve questions of scientific engineering of no mean quality. Yet these problems must be met and solved within the next decade.

RICE IN SIAM.

Siam is, with few exceptions, a great alluvial plain extending hundreds of miles to the north of Bangkok. This plain is capable of being made the richest rice garden of the world. As yet, the soil has been scratched in but the crudest way and in limited areas; nevertheless, its abundant harvests feed the millions of Siam's people and supply an enormous export every year. The very little that has been done to turn the jungle into productive fields has returned rich rewards in improved harvests, improved revenues, and improved homes. This great uncultivated plain lies ready to respond to the simplest processes of irrigation. Its area is vast, its soil is rich, and the quality of its rice stands first in the European market. The crop of 1901, because of a favorable season and an increased area sown, furnished about $16,000,000 gold of the exports, an increase of some $4,000,000 gold over any previous year in the history of the country. This was manufactured rice, which means not only an increased demand for agricultural implements, but for rice-milling machinery as well.

IRRIGATION.

Encouraged by such results, the Government is developing a plan for a system of irrigation throughout the entire country under the supervision of a competent engineer. This must be effected in conjunction with the vast system of canals which form the highways of the country and intersect this vast plain in every direction. These, through years of neglect, have become choked. By the dredging of these old canals and the opening up of new ones, Siam's increasing harvests and improved industries must find cheap transport to the sea; and here is another problem that awaits solution.

HARBOR WORK.

The great mud flat at the mouth of the river, known as the bar, stretches away for miles, effectually blocking this splendid harbor against all shipping for a good part of the time, and against a good part of the shipping at all times—a hindrance to commerce, an expense to the trade, and a nuisance that finds no excuse for existence but the considerable outlay that would be required to remove it. The solution of this problem has probably been hastened by the recent discovery of a new channel somewhat deeper and considerably shorter, which shows the direction of the currents that could aid in opening a commodious entrance.

RAILROADS.

Siam's railroads are in their infancy, yet the little State has already spent the handsome sum of $16,200,000 Mexican ($7,452,000 gold), and her railroad plans extend well into the future. The disturbances in the north during the last few months have resulted in a decision on the part of the Government to enter upon a programme of railroad construction not hitherto anticipated. To this end, a national loan of £1,000,000 ($4,865,500), or about 20,000,000 ticals, has been decided upon, and the railway department has already under way the preparation of invitations for tenders for the supply of permanent way material for the northern line, some 400 miles in length. This is to be followed immediately by a still further extension of the northern and probably by an extension of the southern line as well.

These are some of the plans and problems that confront this people for solution now; of the development of the mines and forests and the abundant agricultural resources, the future will speak. For a house competent to enter this field, there is probably no better business outlook in the world.

NOTES.

Siam has a snug little navy, of which she is justly proud, and this, with her army of 10,000 soldiers, furnished with the most modern equipment, calls for constant supplies.

The foreign trade of Siam is increasing. In the year 1901, this trade was $17,207,551 Mexican ($8,173,587) in excess of that of the previous year, an increase of over 30 per cent.

Siam's finances are in excellent condition. Her revenues show a constant and healthy increase during the last eleven years; her European securities have increased over 14 per cent during the last year; her treasury balance has more than doubled at home; and she has no national debt. Undesirable taxes are being abolished; no new taxation is being imposed; a greater security of property encourages industry and thrift; and the people's wants are increasing with their prosperity.

HAMILTON KING,
Consul-General.

BANGKOK, *October 20, 1902.*

FAILURE OF AUSTRALIAN WHEAT CROP.

It is now realized beyond doubt that the Australian wheat harvest for the coming season will be a failure, and must be followed by heavy importations of food stuffs from foreign countries. Competent authorities have expressed the opinion that during the next season fully 200,000 tons of breadstuffs must be imported from various wheat-producing centers in order to meet the harvest deficiencies in the Commonwealth. In order to convey an idea of the situation, it is necessary first to consider the producing capacity of each State. From the statistical matter compiled by Mr. Coghlan, it is shown that in the harvest of 1902 the wheat produced in the various States of the Australasian group was over 42,584,423 bushels, made up as follows:

	Bushels.
New South Wales	14,408,705
Victoria	12,127,382
South Australia	8,012,762
Queensland	1,692,222
West Australia	933,101
Tasmania	963,662
Total for the Commonwealth	38,537,834
New Zealand	4,046,589
Total for Australasia	42,584,423

In New South Wales the crop last year was fairly good, but the present season provides the gloomiest outlook that the State has known for many years. The food and seed requirements of the State are computed at 9,000,000 bushels, which would leave 4,500,000 bushels available for export on the figures of last season's crop. This season's wheat, however, will not reach 50 per cent of the quantity reaped last year, so that not only will there be none for export, but there will be from 1,500,000 to 2,000,000 bushels less than are needed for home consumption and sowing.

In Victoria, the crop last year yielded 12,127,382 bushels, while the present harvest is estimated at 2,948,750 bushels, to which may be added 2,998,953 bushels of old wheat on hand, making a total available supply of 5,946,953 bushels. But before the harvest can be gathered at the end of the year, Victoria will need 7,884,882 bushels of wheat for food supplies and 1,700,000 bushels for seed purposes, so that, instead of exporting, the State will have to import about 3,637,929 bushels of wheat to supply her own needs.

The position in South Australia is somewhat happier, inasmuch as the crop is estimated to be enough for home consumption and to yield about 4,000,000 bushels for export. Queensland, West Australia, and Tasmania have suffered seriously, and will be entirely dependent on imports, the crop being inadequate. It is estimated that fully 200,000 tons of breadstuffs will have to be imported into the Commonwealth States to cover the demand. Already, 15,000 tons are afloat for New South Wales, the majority coming from California. San Francisco is the natural port for Australia to look to, but California flour has risen since Australian orders went to the market, and, at present, values stand at a level which almost precludes purchase. The effect will be to divert a good deal of trade to Canada, which can supply hard wheats of a class well suited to mix with California flour. During the past few days merchants here have been making inquiries in Russia and India, where crops are good, and also in Argentina and Europe. While the price may rise, it is not thought likely that it will reach an abnormal level, as Canada is well supplied, and both grain and flour can be landed here at figures which will prevent any extreme inflation of values.

From a purely local standpoint, the interest lies not only in the possibility of a dear loaf, but in the effect on freights. The absence of wheat and wool export should tend to throw a fair amount of tonnage to the coal trade. The wheat which must be imported will, on a basis of 3,000 tons per cargo, necessitate the employment of about 60 vessels, and as no outward cargo is available for these craft they will most probably be thrown upon the coal market. It may pay them better, however, to proceed in ballast direct to a nitrate or wheat port than to carry a cargo on a freight so low that it leaves no margin of profit.

F. W. GODING,
Consul.

NEWCASTLE, *November 11, 1902.*

WOOL TRADE IN AUSTRALIA.

Australia has long been noted for the excellent class of its sheep. Formerly, the best wool was produced in Spain, the mild and equable climate favoring it. New South Wales was first stocked from Spanish flocks, and it is said that in this climate the wool has gradually grown softer, more elastic, and longer than that produced in Spain, and so has gained a high reputation.

In 1891, there were 61,831,416 sheep in New South Wales, the greatest number on record, and it is considered that the country was at that time overstocked. The total amount of wool said to have been produced in this State in 1891 was 375,600,667 pounds. In 1894, there were 4,000,000 less sheep, but 4,000,000 pounds more wool. There has been an almost constant decrease in the number of sheep down to the present time. Owing to the drought, the past year has been the most disastrous of all.

The total production of wool in New South Wales for 1900 is stated at 237,659,727 pounds, which is less by 137,940,940 pounds than in 1891.

The export of wool from the Commonwealth in 1900 was 409,394,600 pounds; from New Zealand, 156,174,000 pounds—total from Australasia, 565,568,600 pounds.

The estimated value of the clip was about $88,500,000.

The sales at Sydney (387,358 bales*) were disposed of as shown below:

	Bales.
To Continent of Europe	211, 701
To England	92, 910
To America	7, 978
To Japan	3, 331
To local scourers	71, 438

The average price realized was £9 11s. ($46.47) per bale.

As to the present condition of the wool trade, I herewith submit a statement from the Sydney Morning Herald.

ORLANDO H. BAKER,
Consul.

SYDNEY, *October 25, 1902.*

OPENING OF THE WOOL SEASON.

The opening of the 1902–3 wool season last week was conspicuous from two or three standpoints.

The quantity of wool available was much lower than was at first anticipated. As to the quality, the selection was not extensive enough to judge the whole of the coming season's clip, but it was sufficiently large to show that many of the clips will this year exhibit to a more or less extent the evil effects of the prolonged drought. On the other hand, there were a few clips that appeared to have stood the drought really well, and these will be in the best of request.

Shortage of merino wool.

From all quarters, the same report is heard that merino wool will be scarce. The arrivals in Sydney to date show a falling off of between 70,000 to 80,000 bales as compared with the corresponding period of last year. The number of sheepskins that are being offered each week is enormous, running into hundreds of thousands. They are largely from the country, having been taken off sheep found dead on the runs, or off those killed for the sake of the pelt.

Small lambing.

The lambing shows an alarming decrease as compared with the previous autumn. The percentage for the whole State is as low as 20½, which is no less than 49 per cent below the previous corresponding record. Take that decrease and add it to the decrease of grown sheep—given at something over 8,000,000—and we have a poor outlook for anything like a large quantity of merino wool.

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*1 bale=300 pounds.

Prospects.

Owing to the ravages of the drought, good quality sound wool will be scarce, and will for that reason be in extra-strong demand. Other classes, also, owing to the limited production, will sell well, but nothing like to the same extent as the better wools. The condition of the wool will be light, and that will help towarp higher values.

Crossbreds have had a bad time, and the future does not appear to be too rosy. They are fetching prices now that are practically at bed rock. This does not affect us to the same extent as it does New Zealand and Argentina, where crossbred wool is largely grown. The only possible chance for an immediate rise in such goods would be a change in fashions.

NOTES FROM NEW SOUTH WALES.

American sheep.—What is, perhaps, the first shipment of pure American Spanish Merino sheep from America to this State since 1886 has arrived to the order of a firm at Bathurst. The shipment, which comprises six ewes bred in Vermont, arrived in excellent condition. The wool is considered very good, and the animals are judged to be a fine class to breed from.

Majolica ware.—A successful effort to establish the majolica-ware industry here has just been made. A mantelpiece costing $750 has been placed in the office of the attorney-general and is pronounced as of a very superior quality. The Government is using every means to encourage this industry.

British preferential trade.—The attempts of the Federal Prime Minister to promote preferential trade with Great Britain have met with a cold reception by the business men, and all are of the opinion that the Federal Parliament will make no move in the matter, such a thing being considered inimical to the best interests of the people of Australia.

Suffrage.—Woman's suffrage is now a fact in New South Wales, but as yet the women do not take kindly to it. In this district, thirty-nine women only have taken out electoral rights.

Drought.—A copious fall of rain has ended the drought, and the people are hopeful that good crops will follow.

F. W. GODING,
Consul.

NEWCASTLE, *October 23, 1902.*

LAND TAXATION IN NEW ZEALAND.

The land taxation act was passed by the general assembly to afford local bodies the opportunity of adopting the principle of rating which is expressed in its title. It is entirely at the option of the bodies to adopt the system, and provision is made for a return to the old system of rating, if desired, after three years' experience of the new one. The act provides that a proportion of the ratepayers on the roll (varying from 25 per cent where the total number does not exceed 100 to 15 per cent where the number exceeds 300) may, by demand in writing, delivered to the chairman of the district, require that a proposal to rate property on the basis of the unimproved value shall be submitted to the ratepayers, whose votes shall be taken between twenty-one and twenty-eight days after delivery of the demand.

Under the original act, it was necessary for a minimum number of one-third of the ratepayers to vote, and a majority of their votes carried the proposal. Now, under "the local government voting reform act, 1899," the question of adoption or otherwise is decided by a bare majority of the valid votes recorded, irrespective of the number of ratepayers who have voted.

A rescinding proposal can be carried at a poll by the same means as one for adoption, but not until after three years have elapsed; and, vice versa, rejection of a proposal bars its being again brought forward for a similar period. However, in the case of past polls, at which the proposal to adopt the act was rejected solely on account of an insufficient number of votes, it is provided that a new poll may be held at any time.

The valuation roll is supplied to the local authority by the valuator general under the provisions of "the government valuation of land act, 1896," and its amendment of 1900, and the definitions of "capital value," "improvements," "unimproved value," and "value of improvements" found in these acts apply also to the rating in the unimproved value act. Provision is made for the adjustment of rating powers given under previous acts to the act of 1896 by fixing equivalents. Thus, a rate of 1s. (24.33 cents) in the pound ($4.866) on the annual value under former acts is to be considered equal to 3 farthings (1.5 cents) in the pound on the capital value under the act of 1896.

The adjustments are to be made so that the rates on the unimproved value shall produce as much as, but not more than, the rates under "the rating act, 1894." For instance, if a local authority has a rating power up to 3 farthings in the pound on the capital value, it can levy any rate in the pound on the unimproved value of land in its district, so long as the producing capacity of such rate is not greater than would be the producing capacity of a 3-farthing rate on the capital value of the district. When a fixed rate, under the older system of rating, is security for a loan, the controller is given power to interfere and fix the new rate himself, if of opinion that the new rate on the unimproved value does not afford as good security as the one to be given up.

The operation of the act does not apply to water, gas, electric light, sewerage, hospital, or charitable-aid rates.

Up to March 31, 1902, the local bodies that had submitted the question of the adoption of the act to the ratepayers were:

Results of polls.

District.	Votes recorded.		
	For.	Against.	Informal.
Auckland City	753	1,697	....
Cheviot County	165	41	....
Devonport Borough	356	109	....
Eketahuna County	149	21	1
Fielding Borough	268	56	1
Gore Borough	122	67	5
Grey Linn Borough	140	71	2
Greymouth Borough	214	48	1
Hamilton Borough	77	52	....
Hokianga County	109	25	6
Hokitika Borough	212	53	3
Hunua Road District	60	2	....
Inangahua County	284	11	2
Invercargill Borough	386	174	4
Karori Borough	93	3	1
Linwood Borough	276	38	2
Lower Hutt Borough	94	68	4
Manawatu Road District	105	10	....
Maraetai Road District	16	....	....
Masterton Borough	221	139	6
Melrose Borough	236	40	6
Mosgiel Borough	58	87	1
Normanby Town District	82	56	3
Onslow Borough	140	8	....
Pahiatua Borough	136	38	1
Pahiatua County	350	31	3
Palmerston North Borough	402	12	3
Papakura Road District	30	1	....
Pelorous Road District	98	41	....
Petone Borough	100	134	4
Picton Borough	27	73	1
Raglan County	116	85	2
St. Albans Borough	350	218	15
South Invercargill Borough	106	54	1
Southland County	919	574	....
Spreydon Road District	141	57	4
Stratford County	399	23	2
Sumner Borough	91	19	....

Results of polls—Continued.

District.	Votes recorded.		
	For.	Against.	Informal.
Sydenham Borough	353	193	....
Tauranga County	90	13	2
Taratahi-Carterton Road District	261	53	....
Timaru Borough	93	246	5
Waimate Borough	235	61	14
Waimate County	368	162	....
Waipawa County	462	28	3
Wairarapa North County	331	68	10
Wellington City	1,261	591	....
Winton Borough	39	53	1
Woodville Borough	175	7	1
Woolston Borough	105	191	5

From the above figures, it would seem that rating on unimproved values bids fair to become universal in this colony, so that it may not be without interest to examine into the origin of this system of taxation and the causes of its apparent popularity.

The system of rating on the unimproved value was first introduced by the General Government in its land and income tax, about 1890, in substitution for the property tax.

The theory of the measure was that, in a new country, improvements should be encouraged by exemption from taxation. The real difficulty was to settle the unimproved value. At first, it was contended that the prairie value was the unimproved value. It soon became apparent that such a basis would afford very little revenue. It then was maintained that to arrive at the unimproved value, the valuator must first arrive at the current selling value of the land and deduct from that the value of the inexhausted improvements, and that the difference was the taxable amount.

This worked unequally in various directions, because the inexhausted improvements were difficult of definition; but the necessity for raising the money reconciled the farmer to the inequality of the burden, though it seemed to vary not only with the district, but with each change of Government valuator. It may be roughly stated that the unimproved value was generally held to be about two-thirds of the market price of the land. The farmer, under the property tax, had paid to the General Government 1d. (2 cents) in the pound sterling ($4.866) on the total value of his property and stock, with an exemption up to £500 ($2,433). Under the land and income tax, he pays 1d. in the pound on the unimproved value of his land, and his stock goes free of taxation.

The average result was thought to be a little better for the farmer, and he enjoyed the consolation of seeing his thriftless neighbor taxed as highly as he was, without any reference to his profitable or unprofitable occupancy. The farmer also felt that the large landholder under this system was bound either to improve, and thus advance the interest of the whole district, or suffer in his estate. Thus, the principle of taxation on the unimproved value grew in favor. It soon came to be felt that the same system applied to the towns might show substantial results. It was contended that much land was held for speculative purposes, and that, if the city rates were levied on the land only, holders would have either to sell or build.

"The rating on unimproved value act" was passed, and several forces were exerted to carry the law when the poll was taken. The banks and large mercantile firms, which under the old system were subject to a first charge of 5 per cent on the annual rental value of their land and premises, hoped to secure a reduction of the rates when the tax was levied on their land alone. The old 5 per cent rental value was estimated thus:

Capital value of land	£10,000=$48,665
Capital value of buildings	15,000= 72,998
Total	25,000=121,663

Five per cent rental on £25,000 ($121,663) equals £1,250 ($6,083); first rate, £62 10s. ($304) yearly. As all the other rates were based on the first one, and as the annual rates amounted to about 3s. 7d. (87 cents) in the pound, the primal amount was of importance. In order to reduce their primal rates, the banks and mercantile firms voted for a change in the law; in order to stimulate building enterprises, the mechanical classes voted for the change; and with a view to forcing idle lands into the market, speculators voted for the law. The ultimate results are yet to be seen. The most prejudicial consequence is likely to be increased crowding, because when the land bears the whole of the city burden, but few can afford space for ornamental gardens.

With regard to the city of Wellington—which, owing to its congested state for want of building space, can hardly derive advantage from legislation of this kind—it is interesting to note that less than one-third of the ratepayers recorded their votes when this important question was submitted to them. It is believed that the "single taxers" were responsible for bringing about the alteration in the system of rating in Wellington. They canvassed energetically, enlisting the support of their immediate friends and many whose personal interests would be advanced by the experiment. Meantime, the large body of ratepayers were either unaware that a poll was being taken or apathetically neglected to record their votes. In some instances, the rates on properties have been increased more than three-fold by the change, while others have, of course, been benefited to a like extent. The following report (dated September 12, 1902) from the local city valuator of Wellington sets out the alterations in the various rates brought about by the adoption of the new system:

> For the past thirty years, and up till last year, the revenue required for the upkeep of the city for various purposes has been collected by the municipal authorities in the following manner: An assessment of the city properties under the "rating act" has been prepared annually by the local body—upon the basis of valuation of the annual letting value of properties.
>
> The following were the city rates paid last year in the pound on the annual value under the old system:

Description.	Rate.		
	s.	*d.*	*Cents.*
General	1	3	30.4
City improvement	0	4	8
Library	0	1	2
Hospital and charitable	0	3	6
Sanitation	0	5¾	11.6
Interest	0	1	2
Water	4 per ct.		....

> Last year, the citizens took a vote on the question of collecting taxes for local purposes upon the unimproved values. The proposal was carried, and the local body are now collecting their revenue on that basis.
>
> The rates total 3⅛d. (8.19 cents) in the pound on the unimproved value. The water and hospital and charitable aid rate is still collected upon the annual value. The present law would not allow the collecting of these two rates upon the unimproved value. Parliament is now in session, and it is thought the law will be amended to enable the whole of the taxes to be collected upon the unimproved value. We are unable to say at present how it is going to affect us, as we have not yet given it a trial.

F. DILLINGHAM,
Consul.

AUCKLAND, *October 15, 1902.*

DENTISTS IN MADAGASCAR.

There is an opening here for an American dentist. At present, there is only one competent practitioner—a native—for the whole island. The governor-general, in reply to a letter on the subject, says that any dentist wishing to settle in this island would not have to undergo an examination, apply for French diploma, or be subjected to any particular formality, except that he would be under the control of the board of health in all that concerns his professional status. He would have to pay the license, which, for Tamatave, is $10 per annum. This, the chief port, is the most eligible location.

General Gallieni has given me the assurance that any American coming here would receive a hearty welcome from the authorities and every attention in facilitating business.

For an American settling here, a knowledge of French, though not necessary, would render life more agreeable. The cost of living for a single man in such a position would be $80 a month, or for a married couple $100. The professional fees to which this place is accustomed are $1 for a consultation or for extracting a tooth. The higher dental operations, of course, are open to all the professional charges adopted elsewhere.

The amount of business would not be enormous, but probably quite enough to fully occupy the time of one man. There are bimonthly mails between Tamatave and all other parts of the world. The cost of a passage from Marseilles to Tamatave is $229 first class and $160 second class.

WILLIAM H. HUNT,
Consul.

TAMATAVE, *October 10, 1902.*

DEVELOPMENT OF GERMAN TOGOLAND.

During the years 1900–1901, Togoland may be said to have been fairly prosperous. The export of palm seed, according to German reports, increased steadily; that of rubber increased 100 per cent. New coffee and cocoanut plantations were laid out. In certain parts of the country cattle and horses are raised, but it has been noticed that horses coming to the coast from the interior die within a short time from the effects of the sea breeze.

The natives busy themselves chiefly in raising corn and nuts. The males plant and reap, while the females carry the products to the nearest trading post for sale. The sea, lagoons, and rivers abound in fish and crabs. On the plantations near the sea, the native laborers receive from 10 to 20 cents a day. Farther inland, this amount is reduced to 7 cents. The money used is coined silver pieces and cowry shells, forty of the latter being worth one-fourth of a cent.

Transportation is still complicated and costly. Owing to the deep sands, it takes eight hours to go from Little Popo to Lome, a distance of about 30 miles. Freight transportation in the interior is done by carriers, who are paid 20 cents a day.

JNO. F. WINTER,
Consul.

ANNABERG, *November 8, 1902.*

AMERICAN MACHINERY IN SYRIA.

American machinery has finally invaded this country. As yet, only the advance pickets are here, but they promise to hold the ground. It is chiefly along agricultural lines we are progressing. I have already noted the advent of American windmills to these regions.* I am now able to state that this year, for the first time, reaping machines have been employed by native farmers. These pioneers all came from Chicago. Eleven were working, during the late harvest, in Cœle-Syria and 26 in the plain of Esdraelon. Also, for the first time in the history of this country, the present year has witnessed the introduction and operation in Syria of a steam thrashing outfit. It came from Richmond, Ind., and caused considerable stir in Cœle-Syria, where it was installed. Its success was complete, even to the bruising of the straw—a most important item, since, in the absence of hay and with the sparing use of oats, barley, and other grains, crushed straw, in these parts, constitutes the staple food for stock. Furthermore, for the first time in the annals of Syria, an oil-motor flour mill has been successfully started in this land; it came from Indianapolis, and is now grinding wheat in Lebanon. It will soon have many colleagues, owing to the scarcity of waterpower. Among late orders from the United States, not yet filled, I would mention a steam plow for Cœle-Syria and 80 walking plows for the Haifa district; also, some hayrakes and mowers, forks, hoes, harrows, land rollers, cultivators, pumps, and petroleum engines, besides a few farm wagons.

Mr. Michel Nasser, of Beirut, Syria (English mail via London), backed by H. Sabbag et fils, has assisted greatly in bringing about this change in agricultural methods, which promises a radical improvement in the economic condition of Syria and Palestine. American manufacturers are referred to Mr. Nasser. Other importers are: B. Audi & Co., Beirut; A. Duck & Co., Haifa; E. Luttiche & Co., Damascus; John Hakim, Tripoli; Phares Behannesey, Zahleh; and Mohammed Dada, Sidon.

Agricultural machines and implements are admitted into Turkey free of duty.

G. BIE RAVNDAL,
Consul.

BEIRUT, *October 25, 1902.*

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*See ADVANCE SHEETS No. 642; CONSULAR REPORTS No. 234.

ARABIC TYPEWRITERS.

On numerous occasions, this office has been asked to encourage manufacturers in the United States to make an Arabic typewriter. I have done so, both by personal representations and in writing. There are millions of people in western Asia, northern Africa, India, and elsewhere who would be benefited by such an invention. It is therefore exceedingly gratifying to learn that, after many experiments, a concern in the United States has finally been able to place on the market a suitable machine. In Egypt, the new Arabic typewriter was turned over to a committee of six experts for criticism and examination. In this connection, the following extract from a reliable newspaper report is submitted:

> Four of the committee were chosen as being experts in Arabic writing, while of the others one was a Government official and the other an English examiner in typewriting. Hitherto the greatest difficulty has been experienced, first, in allowing certain letters double the space of the others and, second, in providing certain letters with three different forms, according as they are at the beginning, the end, or in the middle of a word. The machine contains 84 characters, and 8 of these automatically supply themselves with double the space of the others. The machine, for compactness and facility in working, is equal to any European machine, and it is calculated that with little practice any ordinary person can easily acquire a speed of 45 words per minute, which would correspond to about 60 words per minute in a European language. The writing is of extreme facility to read and presents a very neat and symmetrical appearance. The joinings of the letters are perfect. The opinion of the Arabic handwriting experts was that the writing was good, but that several letters could be more elegant. An English idea of writing is naturally based on simplicity and facility in reading, but handwriting to be perfect from an Arabic standpoint must be pretty or even ornamental. The machine has doubtless come to stay, and is now being shown at the various Government offices.

There will be immediately a great demand for the Arabic typewriter, and before long, I take it for granted, several concerns in the United States will be manufacturing and exporting Arabic machines. As agents in Syria, I would mention Mr. Michel Nasser and Messrs. B. Audi & Co. (Beirut, Syria, English mail via London).

G. BIE RAVNDAL,
Consul.

BEIRUT *November 4, 1902.*

COMMERCIAL CONDITIONS IN ASIATIC TURKEY.

The following extracts are from the annual report of Consul T. H. Norton, of Harput, to appear in full in Commercial Relations, 1902:

This district is comprised of the two vilayets of Diarbekir and Mamouret-ul-Aziz, both largely pastoral and agricultural. Public security is not assured, and this, with the restrictions on the movements of the Armenian merchants, who constitute the bulk of the trading class, has caused widespread commercial stagnation.

Despite these untoward conditions, much has been done to establish and develop trade relations with the United States. Agencies are opened for different articles of American manufacture, and the prospect is favorable for the healthful development of direct trade in a variety of articles.

An interesting result of the establishment of this consulate at the beginning of 1901 has been the steady growth of direct exportations to the United States. Various products of the region have hitherto found their way ultimately to America, after purchase by merchants at Marseilles, or Constantinople, or in the seaports of Anatolia. I have endeavored to place the exporters of the region in direct communication, as far as possible, with American houses. A steady and rapidly growing trade in rugs, skins, and sausage casings has been established.

DIARBEKIR.

The merchants of Diarbekir purchase almost exclusively from wholesale houses at Constantinople, Aleppo, and Beirut. There are practically no dealings direct with manufacturers in any foreign country. The same condition of affairs exists with regard to exportations, nearly all transactions being done through commission agents. The Singer Sewing Machine Company, however, has its own agency in the city of Diarbekir, and within the past few months the direct exportation of goatskins, sausage casings, and rugs to the United States has begun.

There is a certain amount of trade with India through Bagdad houses. Unfortunately, during the past year, both the river route to Mosul and Bagdad and the main caravan route to Aleppo and Alexandretta have been rendered extremely unsafe by Kurdish brigands. Several valuable caravans have been plundered, and as a result trade has suffered severely. Formerly, caravans from the coast arrived almost daily; now they rarely exceed three or four a month, and are accompanied by strong escorts. The result is a marked decrease in both the imports and the exports of the vilayet.

Among miscellaneous trade notes, the following are the most important:

Candles.—The annual import is valued at $3,700. France supplies 75 per cent of this amount; Belgium the remainder. It would appear that a large Belgian house will shortly monopolize this trade. Candles manufactured at Constantinople have been introduced, but the quality was so inferior that few sales could be made.

Cotton yarn.—Diarbekir imports cotton yarn from England to the annual amount of 720,000 pounds, valued at $178,000. The favorite brands are those of "Mac Lore" and of "Hombart," from Manchester. A spinning mill at Adana sells here annually 300 bales of yarn, valued at $16,100. Numbers 14 and 24 are chiefly in demand. They sell at $1.92 per packet of 10 pounds. Purchasers dye the yarns with aniline dyes to suit their requirements.

Handkerchiefs.—These are largely used for head coverings. They are rolled together to form turbans. A Kurd will frequently incorporate a score of handkerchiefs into his turban, so that the total weight, including the fez, exceeds 2 pounds. These handkerchiefs, of light cotton cloth, were formerly imported from Switzerland; now, they are brought from Tokat, near Sivas. Diarbekir importers dye them in rather loud colors, to suit the local taste. Pocket handkerchiefs, both white and in colors, are imported from England. The annual value is $6,700.

United States trade.—The part of the United States in the commerce of Diarbekir is chiefly confined to receiving a large share of the wool, sausage casings (sheep's intestines), and leather. The importations from the United States consist of sewing machines, nails, and a small amount of books, furniture, and clothing for the American mission station at Mardin. There is a small group of naturalized American citizens in and near the city of Diarbekir. The temporary residence in the city of Diarbekir, during the past two years, of a distinguished American surgeon—Dr. F. D. Shepard—has done much to further American influence in this region. A German surgeon is now located permanently at Diarbekir.

MAMOURET-UL-AZIZ.

Cotton.—This region produces an excellent grade of cotton and should be the seat of an extensive cotton spinning and weaving industry on account of the abundance of water power. The native manufacture, dependent entirely upon hand power and using chiefly yarn of English make, is steadily waning, finding it difficult to compete with the products of English, German, and French looms.

The Harput orphanage, conducted and sustained by American benevolence, has introduced the weaving of attractive patterns which meet the popular taste, and is doing much to enable local industry to meet foreign competition. American "Cabot A" has promptly gained a good foothold here, and is highly appreciated. It has been forced, during the past year, to contest the field with an Italian sheeting of inferior grade, imitating very closely the American trade-mark.

American "Cabot S" has appeared in the Harput market during the present season for the first time and meets with even more favor than the "A" mark.

There is an excellent opening here for American yarns, calicoes, prints, sheetings, and, in fact, all varieties of cotton textiles. White yarn only is imported. It is found cheaper to dye the yarns here.

Rugs.—There is a steady but limited production from the Kurdish looms of the region, extending but little beyond local needs. Circassians have lately established in this city the weaving of rugs of genuine Persian designs, and much is expected from their undertaking. The rug department of the American orphanage, referred to above, is steadily perfecting its work and turning out products which find a ready sale in the United States. Much of its work is done to order after designs sent from America. It sells at $1 per square foot, a price much in excess of the average of oriental make.

The widespread use of the brilliant but fugitive aniline dyes in coloring the materials used for rug weaving in Turkey leads to a steady depreciation of their value in the eyes of European and American connoisseurs, when contrasted with the products of Persian looms. It is worthy of note that the yarns employed in the American orphanage are dyed exclusively with vegetable coloring matters.

TRADE WITH THE UNITED STATES.

I am glad to chronicle a steady increase in importations from America into Harput since the establishment of this consulate at the close of 1900, as well as a marked increase in direct exportations to America.

The following are the more important branches in which a foothold has been gained which promise development:

Bicycles.—Following the introduction of the bicycle which I brought with me, there has been an importation of twelve American wheels. The roads about Harput are well adapted to wheeling, and during the coming year it is planned to introduce our bicycles at Diarbekir, Malatia, and Karahissar, all places surrounded by excellent highways. An agency for American bicycles is organized here and sells a strong, durable wheel of simple type, well adapted to the needs of this region, for $30.

Irrigation appliances.—An agent has taken up the introduction of irrigation machinery. A consignment of American pumps and horse-power has been received the past summer, and has already been put into active operation. This simple and economical method of raising water is well adapted to the needs of the great Harput plain, where water is found abundantly not far from the surface and animal, as well as human, power is exceedingly cheap.

The question of irrigation here, as in the southwest of the United States, outranks every other factor in the economic development of the country. Negotiations have already commenced for the introduction of our windmills for raising water. I have devoted much attention to the matter with local capitalists. They are endeavoring to raise a fund sufficient for the purchase of an American drill. Should the experiments with either method yield satisfactory results, there would be no hesitancy in adopting either or both forms of solving the problem.

Agricultural implements.—As mentioned in my last annual report, an agency for the sale of our agricultural machinery and implements was established in 1901, and a variety of plows, harrows, and drills, as well as a reaper, were imported. The experimental trials have been made upon an extensive farm near the Euphrates, some 25 miles from this consulate. Some time was lost in training horses to work with the plows and other implements.

The results obtained from the deep plowing of the American plows were striking, when compared with the yield of grain in adjacent fields where the ground had been "tickled" by the primitive native implement. Equally striking results were obtained when the wheat drills were employed instead of the customary broadcast seeding. The reaper was used during the harvest of the past summer. After overcoming some minor difficulties, it was found to work quite successfully. It now accomplishes in one day the work of 40 men. When both horses and drivers are thoroughly accustomed to the work, it will probably replace 70 to 80 men.

As the chief item in raising grain here is the cost of harvesting, it may readily be imagined that the introduction of such a labor-saving appliance caused no little stir in a region where the laboring population is so exceptionally dependent upon the earnings of harvest time. Soon after the reaper was running regularly and smoothly, the price of a day's labor descended promptly 30 per cent—from 20½ cents per diem to 14 cents. The enterprising agent—a graduate of an American agricultural college—was forced at once to face a condition of affairs similar to that which followed the introduction of the spinning jenny and the cotton gin. Every attempt was made to wreck the dreaded innovation, so that it was necessary to keep it at night in the owner's habitation. His garden of American vegetables was destroyed, his fruit trees were cut down, shots were fired at his house during the nighttime, and his workmen were induced to desert him. In spite of all these discouragements, the experiment was pluckily continued to the close of the season. Another year will see the more widespread use of the reaper and the introduction of the thrashing machine. Both machines will be transported from farm to farm, as needed, by individual or corporate owners. There is probably no single farmer in the vilayet whose cultivated lands are sufficiently extensive to warrant the purchase of even a reaper for his individual use. The chief difficulties in the way of using the reaper extensively are the terraced arrangement of irrigated fields, the smallness of the individual holdings, the abundance of stones, and the existing habit of cutting the grain close to the ground, in order to secure the maximum of straw. The thrasher, when introduced, must be accompanied by a straw-cutter. The straw is withdrawn from the old-fashioned "thrashing floors" in a very soft, finely cut condition. The population is so accustomed to straw in this condition that it is useless to attempt to introduce machinery leaving it in any other form. An illustration of the tenacity with which they hold to old methods is the practically universal demand of the farmers, in ordering American plows, for the reversible or "sidehill" plow. In plowing with the primitive oriental implement, it has always been customary to plow back and forth, and not around the field. The farmers here, while recognizing promptly the enormous superiority of a share and moldboard, still dislike to deviate from the ancient method of conducting the operation. In many cases, however, when using plows on long, narrow terraces in irrigated fields, they are probably correct in preferring a reversible type.

Hoes, rakes, pitchforks, and other small farm and garden implements are favorably received, and there are good prospects of a steady trade springing up. Probably, the metal parts only will be imported and handles will be attached here. This is the practice with regard to the large number of shovels imported from Europe. There is, however, an unfortunate lack in this region of ash, hickory, and similar woods adapted for this purpose.

Fanning mills are used universally. They are modeled after a mill introduced by an American missionary some years since. The metal parts are imported from the United States, with the exception of the wire gauze for the screens, which is brought from France. Native carpenters here turn out annually from 150 to 200 of these fanning mills, which are sold at prices ranging from $5 to $9 and render good service.

Hardware.—American nails are steadily occupying this market, displacing the Belgian article. At present, about equal amounts of both are imported. The American nail is, however, regarded as much stronger and better adapted in every way. It will apparently soon have exclusive possession of the field.

Roofing.—American steel roofing has been used in the rebuilding of the various edifices of Euphrates College and of the American mission station at Harput, destroyed in the unfortunate events of 1895. Its manifest superiority to the fragile tile roofs and ponderous mud roofs hitherto in vogue has quickly been recognized. The new city hall of Harput is covered with this roofing, and a large school building in process of erection is to have the same covering.

Shoe pegs.—There is a large consumption of wooden shoe pegs in this country. It is met partly by importations from Germany and partly by a crude native product, laboriously made by hand. I have secured samples and prices of American pegs. The quality and cost are so satisfactory that a consignment has been ordered and is now on its way hither. There is every prospect that a trade of some importance can be built up.

Sewing machines.—The agency of the Singer Machine Company, started here two years ago, is doing a very satisfactory business. It has branches at Diarbekir, Mosul, and Bagdad, and has just started a new one at Bassorah.

The sales in the four vilayets during the past year were:

	Number.
Mamouret-ul-Aziz	140
Diarbekir	65
Mosul	115
Bagdad	80
Total	400

The receipts from all the agencies amount to $11,000. Over 500 machines are now on deposit in the different agencies. The demand at the outset was largely for light machines turned by hand. Now the somewhat more costly machines, with treadle, are sold more freely. The great majority of the machines are sold on the installment plan. There seems to be no difficulty in making collections.

The success with which these machines have been introduced in this region and in Mesopotamia, completely displacing all foreign competition and covering promptly and effectively so extensive a territory within two years, is a most striking lesson to all American manufacturers desirous of establishing themselves in a country possessing great potential commercial possibilities.

Books, furniture, and clothing.—Euphrates College and the mission station at Harput import annually from America books to the value of $550 and furniture, clothing, etc., to the value of $2,900.

Life insurance.—The agency of the New York Life Insurance Company, established here over a year ago, is extending its operations to adjoining places. During the past year, 66 lives have been insured in the near-by towns of Arabkir, Eghin, and Arghani Maden. In this city few policies were taken out during the past year, although quite a number were insured immediately after the opening of the agency. There seemed to be a general disposition to wait and see what would happen when a policy became due. The first death of an insured person occurred a few months since. The amount of the policy—$1,100—was paid at once, and this promptitude has inspired general confidence in American insurance methods.

Tools and machinery.—Some American tools, for working both wood and metal, have found their way here and are thoroughly appreciated. Artisans and mechanics are unanimous in desiring that a regular importation of the articles could be brought about. Inquiries are frequent for small steam and petroleum engines, for lathes, for sawmills, for flouring mills, for cotton and wool machinery, for water-power outfits, and for cotton gins. Some forty gins are now working in the Harput plain. They are all of English origin, and fifteen are of quite modern type. Each one requires 4 horsepower and cleans from 350 to 850 pounds of cotton daily. These gins, delivered at Mezreh, with their accessories, cost $154. On an average, such a gin earns annually about $50 net profit, after deducting the cost of labor, water, repairs, etc.

Clocks and watches.—There is a steady demand for both articles, especially for those provided with Turkish figures on the faces. Timepieces from America come frequently as gifts and are highly valued, but no direct importation has been attempted.

Textiles.—There is an excellent opening for nearly every variety of textile. Plain sheetings from America have proved so satisfactory that the market is ready to receive a large variety of cottonades, handkerchiefs, towels, etc.

Shoes.—Probably no article of American manufacture, if properly introduced, would succeed better here than the American shoe. It is well known, for a large number of emigrants from this district are engaged in the manufacture of shoes at Lynn and other towns of eastern Massachusetts.

Packing of goods for the Harput market.—So much depends upon the care with which goods intended for markets in the interior of Asia Minor are prepared and packed for the long journey that the following information may be helpful to manufacturers or merchants seeking to gain a foothold here. In order to secure the lowest possible freight rates, packages should be adapted as far as possible to local requirements.

Wagon transportation is available for freight forwarded to the seaport of Samsoun. It is the only means of transport and the route the only means of communication available for packages exceeding 240 pounds (85 okes) in weight. Wagoners are unwilling to take packages exceeding 510 pounds (180 okes). Such packages, as well as light packages of large or awkward volume, pay excess freight. The maximum weight of a package which can be transported by wagon is 1,415 pounds (500 okes).

In packing for this market boxes or bales which are to be forwarded by wheeled transportation, care should be taken to have the cases and wrappings of a thoroughly solid and substantial nature and to pack the contents so tightly that there is not the slightest possibility of friction. These precautions are of prime importance, in view of the journey of fifteen to twenty days in springless, jarring vehicles over highways originally well constructed, but now in a sadly dilapidated condition. Samsoun agents protect packages, when necessary, with coarse, waterproof coverings before forwarding to the interior.

As an instructive example of freight charges on goods from abroad, I might quote the following data on a recent consignment of American agricultural implements to Harput: The lot included 1 mower, 3 plows, 3 cultivators, 1 harrow, 40 rakes, hoes, and forks, 2 sets of harness, etc.; gross weight, 2,839 pounds; net weight, 1,999 pounds; cubic feet, 136.8. The freight rate from New York to Samsoun was $14.07, plus $1.80 insurance and $2 cartage in New York. The freight charge from Samsoun to Harput was $55, the rate being slightly higher than usual on account of the presence of two very bulky cases.

When pack horses or mules are employed, the necessity for very compact and tight packing is less imperative than by the preceding method. The range of weight is, however, much more restricted. The normal weight for a package to be carried by the average horse or mule is 177 pounds (62½ okes). Muleteers dislike to take heavier loads, but occasionally accept packages weighing up to 198 pounds (70 okes). For packages of less than the normal weight, one-half or one-third of the above figure—177 pounds—can be adjusted most advantageously to the pack animal. The preferable shape of a package is oblong, the proportions approximating those of a customary dress-suit case.

The above remarks concerning shape, division of weight, manner of packing, etc., apply also to transportation by camels. This method is the least expeditious, but on the other hand the cheapest and the most satisfactory of all the means of freighting. The slow, deliberate tread of the camel causes a minimum of jarring to the contents of the boxes. The preferable weight of packages for camels is 226 pounds (80 okes); the maximum weight is 246 pounds (85 okes).

Freight rates from Samsoun to Harput, a distance of 307 miles (495 kilometers), vary from $1.40 to $1.97 per 100 pounds ($31.36 to $43 per ton of 2,240 pounds, or $3.09 to $4.34 per metric quintal of 220 pounds), or 10.2 to 14 cents a mile per ton of 2,240 pounds. Camel transport is the cheapest form of transportation; freight wagon the dearest. The latter method is most expensive in winter and early spring, when mud is deep and the mountain passes are obstructed by snow. Transport by pack animals is cheapest in the spring and early summer, when herbage is abundant by the wayside and the cost of subsistence en route sinks to the vanishing point.

Summary.—In conclusion, I would repeat my conviction, as expressed a year since at the close of the first annual report from this consulate,* that there is an exceptionally good opportunity in this district for American commercial enterprise to gain a substantial and permanent foothold.

Geographical and physical conditions show clearly that this region, about the head waters of the Euphrates, is destined at an early date to play a leading rôle in the economic development of eastern Turkey and of Mesopotamia. Its mountains contain varied mineral treasures awaiting exploitation. Its plains and valleys are exceptionally fertile. The climate is one of the healthiest known. Its water power is sufficient to make it a manufacturing center of continental importance. The political power which controls its water supply controls the very existence of the population of Mesopotamia, which has been, and should be again, the garden of the world.

Thus far no European house or agency has been established in the district. It is practically "virgin territory."

The favoring conditions for American enterprise are:

First. The large emigration from this district, settled almost exclusively in the United States, has given rise to a familiarity with American articles and taste for them, and has brought about personal relations between the two countries which are of incalculable value as a foundation for business connections.

Second. There is, in addition, a notable confidence in American integrity and in the quality of American wares, heightened by the growing dissatisfaction with the cheap articles imported from Europe.

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*Commercial Relations, 1901, Vol. I.

Third. Thanks to the long-continued labors of American missionaries and teachers at Harput, English is the prevalent foreign language of the region.

The chief difficulties to be overcome in establishing trade relations with America are the following:

First. The lack of confidence in the existing administrative conditions, in Turkish judicial procedure, and in the political future of this region.

Second. The diminished stock of ready money in circulation.

Third. The unsettled state of credits, resultant from the rude shock to the commerce of the country during and subsequent to the massacres of 1895.

Fourth. The length of time necessary for correspondence with the United States. An exchange of letters between Harput and New York requires two months.

Fifth. The high freight rate from the littoral and the delay in receiving American consignments, due to absence of direct sea communication with trans-Atlantic seaports.

AUSTRIAN NAVY AS AN AID TO COMMERCE.

In addition to various other enterprises for increasing Austro-Hungarian exports, it is of interest to note that the *Zenta*, one of the vessels of the Austro-Hungarian navy, lately commissioned for a year's cruise, has been, in a measure, rendered available for purposes of commercial investigation. The *Zenta* will visit the chief ports of Africa, several important island groups, as well as Uruguay, Brazil, and the Argentine Republic. An experienced officer of the Austro-Hungarian consular service has been detailed for duty—with the consent of the marine section of the Ministry of War—to accompany the vessel on her cruise, in order to study the trade conditions of the countries visited and make reports to the Government, with the ulterior object of increasing the exports of Austro-Hungarian products to the districts in question. Although towns may be visited where Austro-Hungarian consuls are stationed, a general survey by a competent commercial specialist can not fail to be fraught with good results. It will be seen that no special legislative appropriation is necessary to render this kind of commercial exploration possible. The plan is eminently practical and well worthy of attention

CARL BAILEY HURST,
Consul-General.

VIENNA, *October 31, 1902.*

OPENING FOR RAILWAY MATERIAL IN SPAIN.

One of the most pressing commercial needs of this district is the construction of light railways to place the fertile fruit and wine districts of the Mediterranean coast in direct communication with the sea.

The "Compañia de Ferrocarriles de Alicante á la Marina" has commenced work on a narrow-gauge road to connect Alicante with Villajoyosa (19 miles), to be prolonged ultimately along the coast to Denia.

The company is exclusively Spanish, but rails and rolling stock will be purchased in the cheapest market. American manufacturers who have offers to make, or who desire particulars of the exact requirements of the road, should address the company direct—Compañia de Ferrocarriles de Alicante á la Marina, 19 Calle Serrano, Madrid.

R. M. BARTLEMAN,
Consul.

VALENCIA, *November 26, 1902.*

COPYRIGHT AGREEMENT WITH SPAIN.

A telegram from Minister Storer, of Madrid, announces that the reciprocal arrangement for the international copyright of 1895 has been restored to full effect by the interchange of diplomatic notes. The terms of the proclamation of the President (July 10, 1895) providing for a copyright agreement with Spain (which lapsed during the war with that country) are quoted below:

BY THE PRESIDENT OF THE UNITED STATES—A PROCLAMATION.

Whereas it is provided by section 13 of the act of Congress of March 3, 1891, entitled "An act to amend title sixty, chapter three, of the Revised Statutes, relating to copyrights," that said act "shall only apply to a citizen or subject of a foreign state or nation when such foreign state or nation permits to citizens of the United States of America the benefit of copyright on substantially the same basis as its own citizens; or when such foreign state or nation is a party to an international agreement which provides for reciprocity in the granting of copyright, by the terms of which agreement the United States of America may, at its pleasure, become a party to such agreement:"

And whereas it is also provided by said section that "the existence of either of the conditions aforesaid shall be determined by the President of the United States by proclamation made from time to time as the purposes of this act may require:"

And whereas satisfactory official assurances have been given that in Spain and her provinces and colonial possessions, the law permits to citizens of the United

States the benefit of copyright on substantially the same basis as to the subjects of Spain:

Now, therefore, I, Grover Cleveland, President of the United States of America, do declare and proclaim that the first of the conditions specified in section 13 of the act of March 3, 1891, now exists and is fulfilled in respect to the subjects of Spain.

ESTIMATES OF EUROPEAN SUGAR PRODUCTION.

Supplementing my report on the estimates of the beet-sugar crop for 1902–3,* I would quote the estimates made by the majority of factories in the leading beet-sugar countries. These reports were gathered from October 15 to October 25, and from the figures a still better judgment can be formed of the probable sugar production of this year, especially if they are read in the light of previous experience. I therefore submit them with previous comparisons, as follows:

Country.	Factories.			Area.		Production of sugar beets.	
	1902.		1901.	1902.	1901.	1902.	1901.
	Heard from.	At work.	At work.	Acres.	Acres.	Tons.	Tons.
Germany	389	390	395	1,062,000	1,181,000	11,820,000	16,000,000
Austria	200	216	216	752,000	898,000	6,995,000	8,945,000
France	263	322	332	553,000	728,000	6,570,000	9,350,000
Russia	250	278	278	1,473,000	1,458,000	8,816,000	8,197,000
Belgium	91	99	107	132,000	173,000	1,590,000	2,509,000
Holland	24	24	32	77,000	119,000	745,000	1,490,000
Sweden	7	17	17	60,000	72,000	560,000	903,000
Denmark	7	7	7	38,000	35,000	375,000	443,000

Country.	Production of sugar.		Production of beets per acre.		Production of sugar per acre.		Sugar in beets.	
	1902.	1901.	1902.	1901.	1902.	1901.	1902.	1901.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Per ct.	Per ct.
Germany	1,700,600	2,293,300	11.1	13.5	1.6	1.94	14.4	14.3
Austria	1,021,100	1,291,100	9.3	9.9	1.34	1.44	14.5	14.4
France	874,300	1,109,700	11.9	12.9	1.58	1.62	13.3	12.6
Russia	1,142,700	1,076,300	5.6	5.6	.78	.74	13	13.1
Belgium	219,000	325,000	12.1	14.6	1.67	1.89	13.8	13
Holland	102,000	203,200	9.7	12.6	1.32	1.71	13.7	13.6
Sweden	77,000	127,000	9.35	12.6	1.29	1.77	13.8	14
Denmark	46,900	58,100	9.95	12.3	1.21	1.59	12.6	12.9

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*Advance Sheets No. 1493 (November 12, 1902).

It will be seen that these latest estimates are the lowest of all yet published, but it is probable that they will be exceeded by later reports, as Italy, Spain, Switzerland, and Roumania, with a crop of about 200 tons, were not heard from at all, and about 150 factories in France and other countries did not report in time. Besides, when the factories estimated this year's crop, there were more beets still in the fields than last year because of the backwardness of the season, which naturally added to the difficulty of getting exact figures. Altogether, there will be considerably less sugar produced this year than will be consumed, but this shortage is a blessing in disguise, as a large quantity of old stock was left over from last season that can now be drawn upon and reduced. From present indications, the supply will continue to more than cover the demand for another year, but in 1904 the world's sugar industry will probably be on a sounder basis than of late years.

HENRY W. DIEDERICH,
Consul.

BREMEN, *November 6, 1902.*

FRENCH SARDINE INDUSTRY.

The sardine catch, which is one of the great industries of the west coast of France, with its centers of trade at Nantes and Bordeaux, has experienced a general failure this year. Sardine fishing is conducted all along the west coast from Brest to Bordeaux, but it is off the shores of Brittany, principally at Brest, Lorient, and Belle Isle, that the famous Nantes sardines are taken. Thousands of fishermen are engaged in netting these little fish, which in this part of the Bay of Biscay are of a better and finer quality than elsewhere in the Atlantic, and great packing factories along the coast buy the daily catch and prepare it for immediate shipment in oil.

This year, as above stated, the catch has been almost a complete failure. Not only have the fish been caught in sizes much too large for packing, but there have been relatively few. This scarcity is so unusual that nobody seems to be able to explain it. Some of the packers say, however, that it is due to the economy of the fishermen themselves, who at the outset of the season, owing to the high price of the bait, failed to use sufficient to attract the sardines to the French coast. The bait used in sardine fishing is known as la roque, being the dried entrails and eggs of herrings and other fish, imported principally from Norway and Sweden.* The fishermen go out from the coast with their fleets of small boats and cast the odorous bait into the sea in great quantities, which generally attracts the sardines in shoals. But this year the price of the bait was unusually high, and it was used at the outset in a niggardly fashion. Some claim that as a consequence the sardines left these waters for better feeding grounds and did not return. On the other hand, it is said that for some unaccountable reason virtually no sardines of packing size have appeared off the French coast since last spring. Fishermen's prices for the sardines are ordinarily from 13 to 14 francs ($2.50 to $2.70) per 1,000. This year, they have received from 30 to 50 francs ($5.79 to $9.65) per 1,000. There was a failure of the catch some three or four years ago, but nothing like so pronounced as this year's. The result at present has been to considerably embarrass the sardine exporters of both Nantes and Bordeaux.

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* Recently, considerable quantities of la roque, composed of the entrails and eggs of codfish, have been imported into France from Newfoundland.

There exists an almost world-wide demand for French sardines, and this year it has been, if anything, stronger than usual; but in view of the insignificant catch (only 10 per cent of the average) a very small percentage of orders can be executed. This has resulted in great profit to the principal competitors of the French—the packers and exporters of Spain and Portugal. There is virtually no stock on hand, and few, if any, of the exporters have been able to fulfill their contracts, while none have been able to supply all demands.

Prices are very high and not at all steady; each exporter, indeed, seems to be making his own prices. The tendency would be seriously high but for Portuguese and Spanish competition.

The present price of Bordeaux sardines f. o. b. for quarter boxes 7½ inches long is from 38 to 55 francs ($7.33 to $10.61) per case of 100 boxes; for Nantes sardines, from 40 to 50 francs ($7.72 to $9.65) per case of 100 quarter boxes.

It is believed that the whole catch along the French coast this year will not amount to more than 150,000 or 200,000 cases.

An idea of the importance of the French sardine industry may be had when the exports to the United States alone are considered. During the fiscal year ended June 30, 1901, these reached the following declared values:

From Nantes and its agencies	$541,168.33
From Bordeaux	487,225.00
Total	1,028,393.33

From Portugal, during the same year, the declared exports to the United States amounted to $102,292.22, and from Spain to only a few thousand dollars. This year, the exports from Portugal to the United States will be very large, and from Spain much greater than ever before. Meanwhile, there is an increased demand all over Europe for the Portuguese and Spanish products, which are much cheaper than the fine French sardines.

In this connection, it may be interesting to know that in view of the Spanish and Portuguese competition—which has steadily grown stronger in the cheaper grades during recent years, in spite of the marked superiority of the French sardines—it was decided at a conference of French exporters that every box of French sardines should be stamped with the word "France," in order that Portuguese and Spanish goods might not be confounded with them.

BENJ. H. RIDGELY,
NANTES, *November 8, 1902.* *Consul.*

INDUSTRIAL EXPOSITION AT RHEIMS.

The Department has received from Consul W. A. Prickitt, of Rheims, notice of the industrial exposition to be held in that city from May 15 to September 6, 1903. This, it is said, is the only exposition to be held in France during the year and is expected to be of great importance from an industrial and agricultural point of view. The hope is expressed that United States manufacturers will participate. The following extracts are taken from the regulations:

All the productions of commerce, industry, agriculture, and the fine arts will be admitted. All explosives and detonating materials judged dangerous and of a character to disturb the public, as well as sparkling wines foreign to the Department of the Marne, are excluded from the exposition. A fixed fee of 20 francs ($3.86) is assessed in exchange for the certificate of admission. The fees for sites in the buildings are, per square meter (10.7 square feet), with right to 3.2 yards height:

	Francs.
Horizontal surface	40=$7.72
Horizontal surface, for machines and farming implements	25= 4.83
Wall surface, not projecting more than 5.9 inches	25= 4.83

The fees for outdoor sites are, per square meter:

	Francs.
With privilege of building	10=$1.93
With privilege of raising structures	5= .97

Exhibitors desiring isolated sites or with several sides exposed must mention the fact in their demand for admission. In the section of the beaux arts, paintings, water colors, engravings, and sculpture sites will be free. The charges for unpacking and packing will be at the expense of exhibitors. Water, gas, electricity, or motor power necessary to exhibitors will be furnished on demand and at their expense. French railways have granted a reduction of 50 per cent on the transportation of products destined for the exposition. All communications should be addressed to M. L'Administrateur, Industrial Exposition, Rheims, France.

SILK INDUSTRY OF FRANCE.

The permanent customs commission of France has just made a report on the value of the silk production of France for 1901, of which I translate the parts which will most interest American manufacturers and dealers. In an aggregate of 550,000,000 francs ($106,150,000), the city of Lyons figures for 439,500,000 francs ($84,823,500). St. Etienne produced 94,000,000 francs ($18,142,000) of velvets and ribbons, and Picardy 6,030,000 francs ($1,163,790). About four or five millions of francs ($772,000 or $965,000) are attributed to Nimes and Tours.

The production of the city of Lyons for 1901 was about 9,000,000 francs ($1,737,000) less than that of the year before, though the quantity produced was greater than that of the preceding year. There is a decline in pure silk and fancy and mixed goods, representing 22,550,000 francs ($4,352,150), entirely in the higher grades. The commission regrets that during the last few years there has been a notable decline in the demand for these finer goods, which are a specialty of Lyons manufacture. It points out that the present tailor-made costume for women permits the use of silk only for the waist, and that light stuffs answer for this purpose to the exclusion of handsome goods, the manufacture of which has virtually ceased. The report continues:

> It is certain that fashion, in changing the form of the costume, will one day restore the demand for these fine silk fabrics, but the trade in Lyons must recognize that for the present it is obliged to deal in other products of the loom.
>
> If fashion has proscribed the employment of pure silk for the outer garment, it favors its use in the highest degree in undergarments; the linen petticoat has disappeared before the silk petticoat, and this has greatly stimulated the production of mixed and pure silk goods.
>
> The light mixed silks, and above all the tissues dyed in the piece, which hold so large a place among consumers to-day, are not produced by the same workmen or by the same methods as the higher-priced goods. These are woven on handlooms, mostly put up at Lyons and operated by weavers who carry their industry to great perfection. The others are made on power looms, in factories scattered throughout the Lyonnese district, particularly in the valley of the Isere.
>
> The industry of Lyons has found a compensation for the falling off in the manufacture of its beautiful goods in an increased production of light fabrics for dress trimmings, etc. It is thus that we find a notable increase in foulards, amounting to 29 per cent; crapes, 5 per cent; gauze, 2 per cent; and silk muslins, 11 per cent. The output of these last two articles in the year 1901 represents 75,000,000 francs ($14,475,000).
>
> Our exports of silk were 168,182,000 francs ($32,459,126) in 1901. The decline in prices reduced this valuation about 4 per cent.
>
> It is still England who buys the greatest quantity of our silks. It is by examining our progress in this market that we can most certainly measure the development

of the industry in other countries. If we suffer from the competition with Switzerland and Italy, it is in the London rather than in the Paris market. In 1901, we sold more silk to Great Britain than in 1900, but we are still far from the figures of 1899 and 1898, and above all from those of 1897.

France is still in the lead in this industry in Europe, and although the United States employs to-day more raw silk than we, it is certain that in the value of our articles, the varied resources of our manufactures, and the skill of our weavers we are still superior to all our rivals in America and Europe. But the very perfection to which we have carried our industry should admonish us that we can not in the future make any notable progress, while we are surrounded by intelligent, industrious, and enterprising rivals who are constantly advancing.

To tell the truth, the general tendencies now prevailing are not favorable to the Lyonnese manufacturers. What made their strength and glory in the past—to wit, the fine taste of their artists, the professional skill of their weavers, the conservatism and wealth of their manufacturers—are to-day rather a hindrance or, at least, are no longer indispensable factors to success.

Certain countries, especially Switzerland and the United States, understood quicker than we the part that the power loom was to perform in the silk industry, and they have outstripped us in a degree which has become all the more marked on account of the decline in demand for more expensive materials.

The report terminates by expressing the hope that there will soon be a return of the public taste to the art which has made the glory and the wealth of the city of Lyons.

JOHN C. COVERT,
Consul.

LYONS, *December 18, 1902.*

GLAUCHAU WEAVING SCHOOL.

Having had a number of inquiries regarding the Glauchau technical school for weaving and designing of textiles, I wish to report the following:

There were formerly two technical schools here, both founded in 1858. The purposes were the same, although one was somewhat exclusive, giving instruction to the sons of manufacturers and merchants only. About 1868, both applied to the Government for financial assistance, which was granted on condition that they unite. This was soon brought about, and the Government appropriated the sum of 5,000 marks ($1,190), promising to give this amount each year if the city of Glauchau would appropriate 2,000 marks ($476), which was agreed to, and since that time the school has received 7,000 marks ($1,666) yearly. This amount, together with the small sum received for tuition, has enabled them to build a large and commodious building and maintain a corps of teachers. Instruction is given in both day and evening classes in the theory and practical work of weaving and pattern drawing, the creation of designs as applied to textiles, the making and calculating of Jacquard cards, drawing and coloring from nature. The course takes usually about three years and costs natives of Saxony 40 pfennigs (9½ cents) a week.

It has been erroneously stated that this school and a like institution at Meerane are closed to others than natives of Saxony. Foreigners from any country will be admitted upon the payment of a fee of 100 marks ($23.80 cents) a year.

Owing to the industrial depression existing throughout this entire district for the last five years, the attendance has steadily fallen off until now there are only 48 pupils, and the city authorities are considering the advisability of closing the school temporarily.

When it is remembered that the population of Glauchau is to-day about 5,000 less than it was six years ago, this situation can be readily understood.

E. A. CREEVEY,
Consul.

GLAUCHAU, *November 10, 1902.*

WEAVERS' STRIKE AT MEERANE, GERMANY.

All the weavers in and about Meerane (6 miles from Glauchau) are striking for an advance in wages, demanding from 80 to 100 per cent increase. It is reported that they are well organized and have funds sufficient to hold out until or after January 1. From the common fund, married men receive 8 marks ($1.90) and single men 4 marks (95 cents) per week.

At a recent conference, the weavers' committee made the astonishing statement that with the prevailing prices it was possible for only the very best mechanics to earn an average of 12 marks ($2.85) per week, working from eleven to twelve hours a day. The manufacturers' committee has offered a general advance of 20 per cent, declaring that as their principal business was with the United States, and as the high tariff makes it almost impossible for them to compete with American manufacturers, if they give more manufacturing will become prohibitive. The result is that to-day there are over 2,500 men and about 3,500 looms idle. Over 400 looms in the city of Glauchau, doing work for the Meerane manufacturers, are also idle, and the outlook is anything but cheerful for the weavers.

Meerane is devoted almost exclusively to the manufacture of novelty dress goods, and the American demand exceeds that of many years past. Exports have increased and general prosperity is felt. It is thought the strike will not materially decrease the exports, as the manufacturers claim to be able to weave their stuff in other districts. The weavers in the Gera district, however, positively refuse to handle Meerane yarns. At prevailing prices, I am at a loss to understand why the American manufacturer of this class of goods can not compete with the Germans. The labor agitation here and the general dissatisfaction have had the effect of practically closing one large mill, the managers of which are now sending 150 looms and machinery to Garfield, N. J., expecting to be able to execute orders there. Unless the strike is speedily settled, which is hardly probable, the exportation of novelty dress goods from this district will materially decrease.

E. A. CREEVEY,
Consul.

GLAUCHAU, *November 11, 1902.*

AMERICAN MANUFACTURES IN CHEMNITZ.

To what extent articles of American manufacture have already invaded the Chemnitz market is well illustrated by the line of our goods on sale at a local store, that of Bargou & Sons. American lead pencils and penholders of diverse kinds are to be found there; chief among this class of goods are fountain pens, which are retailed at a price ranging from 50 cents to $2. These pens, it seems, can be bought more cheaply in the German market than in America, the reason apparently being that American manufacturers make their profits in the United States and sell abroad at a price that wins and holds the trade. Beautifully mounted American gold pens are to be had at various prices up to $2.50.

Other articles of American make are puzzles made of cast iron, retailing at from 5 cents to 10, 20, or 50 cents; kites, of the square variety, made of paper, and shipped folded together, retailing at from 3 to 20 cents; phonographic rolls; perforated seat boards for chairs, retailing at 5 cents; glass cutters, retailing at 10 cents; tack hammers, at 10 cents; fly killers, with wooden handles and steel brushes, at 10 cents; cream beaters, at 10 cents; and various classes of pictures intended for decorative purposes, retailing at the low figure of 60 cents.

The perforated seats for chairs are also said to be imported to a great extent from Russia. The perforations take the form of decorative designs, and the wood is about one-third of an inch in thickness.

From the above list, it will be apparent to the American manufacturer that profitable business can be done in the exportation of articles of low market value. Articles like kites, of which thousands occupy but a comparatively small space when packed, and light chair seats incur but a slight transportation charge. The importation of kites is, according to the statement of a local business man dealing in this article, rapidly falling off, because of the neglect of the American manufacturers to protect themselves in Germany with a patent covering this particularly popular kite. German manufacturers are said to have at once taken up the production of the American kite and are now holding the larger part of the market. This trade incident ought to teach our manufacturers a lesson in the necessity of promptly protecting their trade interests in foreign countries by patent rights and guarding against their imitation by German manufacturers.

The local retail houses handling American goods of course do not import directly, except in very rare instances where such an extraordinary demand exists for certain goods as to warrant the direct shipment of large orders. As a rule, the large importing houses located at Hamburg, Bremen, Berlin, and other advantageous trade points act as distributing centers and supply American stock in small quantities on short notice.

J. F. MONAGHAN,
CHEMNITZ, *November 4, 1902.* *Consul.*

GERMAN BICYCLE EXPORT.

The German export of bicycles for the year 1900 was $2,500,000. This figure is exceeded by the English export for the same year, which was $2,570,000; and by the American export, which was $3,070,000. Germany had, however, made a gain, for her exports in 1899 were but $2,785,000, while the English were $3,213,000 and the United States $4,807,000. During the year 1901, Germany rose to the head of the list, with an export of $2,927,000, while England came next with $2,808,000 and the United States had only $2,595,000. These figures include complete bicycles as well as parts. Of particular interest is the decline in the American export, which in 1898 amounted to $7,150,000, or as much as the combined exports of England and Germany. The explanation of this decline is found in the strong restriction of the European market. In 1898, Europe took $5,236,000 worth of bicycles from America, in 1901, only $1,475,000, of which $500,000 were taken by England and about the same amount by Germany. During the first six months of 1902, the German export shows a further gain, the total being $2,332,000, or an increase of $500,000 over the same period of 1901. Most of the countries of Europe are reported to have imported more German bicycles during the first six months of 1902 than either English or American wheels

J. F MONAGHAN,
CHEMNITZ, *October 24, 1902.* *Consul.*

COAL-TAR-COLOR INDUSTRY OF GERMANY.

Under the caption "Aniline dyestuffs in German export commerce," the Frankfurter Zeitung, of October 20, 1902, contains the following interesting editorial:

From an article published in the third quarterly volume of the statistics of the German Empire, concerning Germany's export trade in some goods of importance for the German color industry in the last decade, we select the statements with reference to the aniline-color industry. The group comprises dyestuffs made of benzole, cresole, phenole, phthalic acid, anthracene, and naphthalene. The report calls attention to the fact that Germany hesitated to take up this new industry, whose beginning dates from the year 1856, when it already had a firm footing in France and England. The conditions for the manufacture of artificial dyestuffs seemed to be much more favorable abroad than in Germany. In England, the necessary materials—as fuel and the products of the acid and alkali industries—were much cheaper than with us (Germany), and raw materials were also lacking here, especially tar and its products, because the gas industry was not so highly developed as in England and France. At present, Germany entirely supplies the coal tar for the home color industry. The importation of coal-tar colors increased from 1892 to 1900, but decreased in 1901. On the other hand, the exportation of aniline colors has steadily increased in the last decade, as shown by the following table, which also gives the exports to the two most important importing countries—Great Britain and the United States:

Year.	Total exports.	Exports to Great Britain.	Exports to the United States.
	*Metric tons.**	*Metric tons.**	*Metric tons.**
1892	10,725	2,082	2,526
1894	12,368	2,497	2,326
1896	16,233	3,603	2,684
1898	19,712	4,007	4,231
1900	23,781	5,076	5,152
1901	25,030	5,800	5,128

* 1 metric ton=2,204.6 pounds.

The exports have not increased as much in value as in quantity, a result of lower prices for the goods.

The export to the United States has doubled in round numbers; that to Great Britain increased in a much larger measure. China, which in 1892 occupied third place, has since been overtaken by Austria-Hungary, which took, in 1901, 2,491 tons, while China took 1,856 tons.

Italy imported 1,673 tons and India 1,430 tons. While France is a regular customer for German coal-tar colors, the export thither is fluctuating, and the same is true of Russia. The export to Belgium has increased two and a half times. To Switzerland also, which has a coal-tar-color industry of its own at Basel, large quantities are shipped. It is noteworthy that although France and Great Britain had a coal-tar-color industry before Germany had one, the export of German colors to these countries is considerably larger than the importation therefrom into Germany.

RICHARD GUENTHER,
Consul-General.

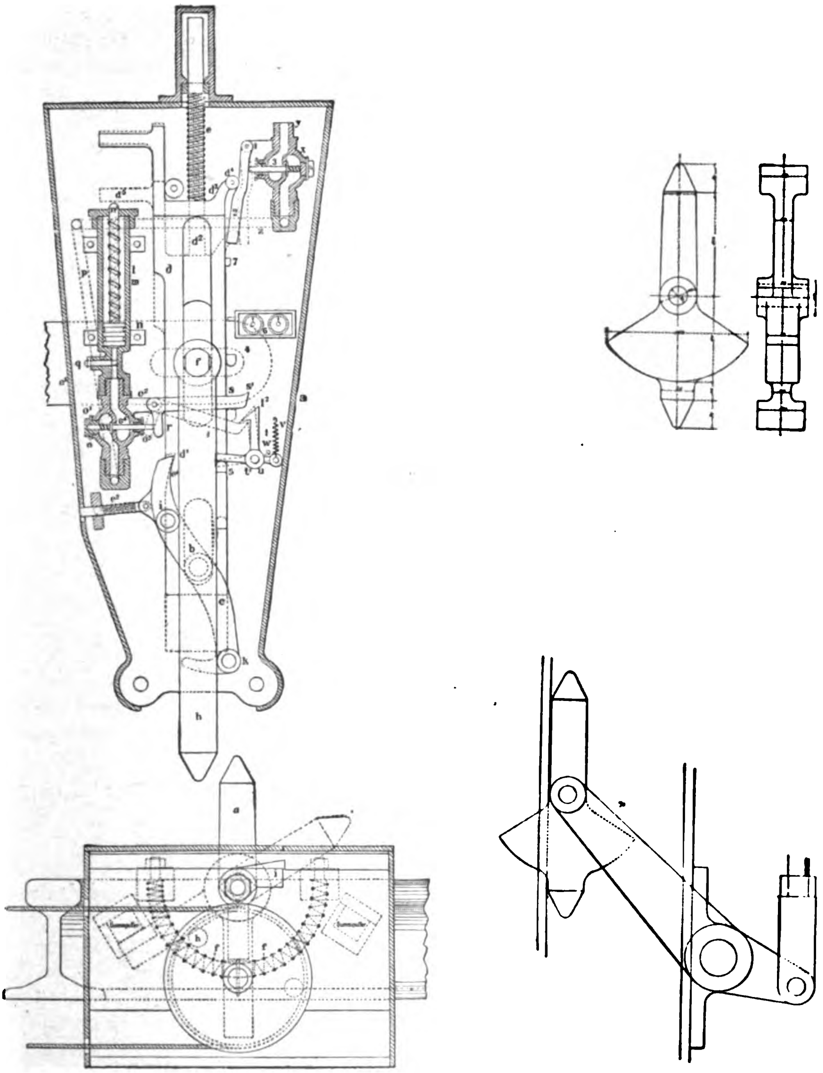
FRANKFORT, *October 22, 1902.*
No 269—03——7

AUTOMATIC OUTSIDE BRAKE FOR TRAINS.

By invitation of the inventor, I rode in the cab of an engine pulling four passenger cars forming the train upon which his new signaling and brake appliance was tested. The train was running at the rate of 30 miles an hour when it was brought to a stop at a determined point, by means of the invention, with absolutely no assistance or cooperation from the engine driver. The Westinghouse brakes on all the cars were set and released again without any perceptible jar; an automatic whistle gave notice that the apparatus had reset itself; and the stoppage of the train was recorded on a dial.

In order to transform the shock, which is heavy at high speed, into a gentle motion, the apparatus is constructed on the principle of two points of contact independent of one another, each of which is provided with a freely oscillating lever. The lower apparatus, serving as the track connection, is connected with all signals, points, curves, gates, etc., so that in the event that it is necessary to stop the approaching train, this lower contact lever is caused to project into the track of the contact lever of the upper apparatus, placed upon the locomotive, and, on touching the same, operates the brake mechanism. The lever, or point of contact, on the track may be set by means of a wire operated by hand or by electricity. Emphasis is laid upon the fact that the apparatus does not suffer any injury by the contact. The apparatus may be adjusted either for complete braking throughout or for only partial. By means of a signal whistle at the time of operation, the engine driver is warned and can himself hasten the braking from the locomotive. The entire arrangement is again brought into operative position by pneumatic power.

Since June 28, 1902, trial trips have been made by mixed trains equipped with this device for the Swiss Government, and a decision of the board of directors is being awaited which, it is hoped, will provide for applying the device to a number of trains. The speed on these trial trips was 37 miles an hour. From Vienna to Krems, the Austrian Government had trials made where the contact was tested at a speed of 62 miles an hour. The results were satisfactory, and the Austrian engineers made special reference in their reports to the imperceptible jar occasioned by the action of the mechanism in stopping the trains. In Germany, the Grossherzogliche Badische Railroad, where frequent accidents have occurred of late, has ordered a number of their express trains to be equipped with the invention.



DISTANCE SIGNALING APPARATUS, WITH SELF-ACTING READJUSTING MECHANISM.

Believing that the matter is of great interest to the railroad world, as well as to the public in general, I append a brief technical description:

On the casing (a), which is preferably fixed on the under frame of a locomotive and the front of which is shown removed, there is pivoted on the pivot (b) a double-armed pawl (c), the upper arm (e^1) of which engages in a notch (d^1) of a plate (d), which plate is controlled by a spring (e) and moves on a pin (f) by means of the slot (d^2). The pin (f) is itself carried on a special arm (g) placed, for instance, on an axle box of the vehicle and touches a contact lever (h), which is guided below between two rollers (i, k) located on the pawl (c).

There is a cylinder (l) arranged at the side of the plate (d), in which a piston (n) slides under the control of a spring (m). At the underpart of the piston is arranged a stop valve (o), which is in permanent communication by means of the locomotive brake. A screw (q) placed in the foot of the cylinder allows the pressure of the compressed air passing to the piston to be regulated. To the valve body (o^1) there is linked by means of the lugs (o^2), an elbow lever (r s), one arm (r) of which rests on the valve spindle (o^3), the other arm (s) having an edge (s^1) which in the depressed position (shown in dotted lines in the drawing) is caught and held in the projection (t^2) of a pawl (t). This pawl (t) is pivoted on a pin (u) attached to the casing (a), and is held in the position shown in full lines by means of a spring (v) and stop (w). There is another stop valve (x) arranged in the upper part of the casing. This valve is connected on the one hand by means of a tube (y) with a signal apparatus (for instance, a whistle), and on the other hand by means of a tube (z) with the main air reservoir. A lever (2), against which the valve pin (3) rests, is likewise linked by means of projections (1) to the valve box.

The operation of the apparatus is as follows:

Supposing the contact lever (h) be pushed (in either direction) out of the position of rest by an obstacle on the line, the upper arm (e^1) of the pawl (c) is thereby turned to the left and the plate (d) released, when the latter falls by its own weight and the action of the spring (e). Thereby the lever (2), with the valve pin (3), is moved to the right by a roller (d^4) on an arm (d^3), so that the compressed air can pass through the tube (z) to the tube (y) and actuate the signal apparatus and warn the train staff.

As soon as the plate (d) has nearly reached its lowest position, a stop (4) on the plate strikes against the arm (s) of the angle lever (r, s) and brings it into the position shown in dotted lines, when it is caught with the edge (s^1) by the projection (t^2) of the pawl (t), and thereby the valve (o) is opened. In this position of the valve, compressed air passes from the main air chamber through the passage (p) into the cylinder (l) and raises the piston (n), whereby the piston rod (n^1) presses against a lug (d^5) on the plate (d) and lifts it. As soon as the plate has reached its original position, the upper arm (e^1), which is controlled by a spring (e^2), of the pawl (c) catches once more into the notch (d^1) and prevents the plate going back. The upward movement of the piston (n) or plate (d) continues until a lug (5) on the plate strikes against the horizontal arm (t^1) of the pawl (t) and brings the vertical arm (t^2) out of engagement with the piece (s^1) (dotted lines), whereupon the current of air coming out of the passage (p) and passing to the cylinder (l) aids the spring (o^5) to close the valve (o). At the same time, by the displacement of the valve pin (o^3), the lever (s) moves back into the original position. As the lever (s) is now free and the supplying of air to the cylinder (l) has ceased, the air compressed therein, driven out by the weight of the piston (n) and the pressure of the spring (m) and blowing slightly against the arm (r) of the angle lever (r, s), is enabled to escape through a passage (o^4) arranged in the valve pin (o^3), so that the piston can return automatically to its original, lowest position, while the plate is held up after a short downward movement of the pawl arm (e^1).

The moving upward of the plate (d), however, also admits of a lateral displacement of the valve pin (3), which is controlled by a spring, so that the supply of air to the signal apparatus (whistle) is also interrupted.

In connection with visible signals for crossings, or in case of fog, when lights are difficult to distinguish, as well as in many other contingencies, the apparatus would appear to be extremely appropriate and add to the element of safety. The appliance has been patented in the United States and foreign countries, and interested parties can receive further detailed information by addressing Ingenieur J. Labhard, 94 Aue strasse, Basel, Switzerland.

ADOLPH L. FRANKENTHAL,
BERNE, *November 4, 1902.* *Consul.*

GERMAN BRIQUETTE MACHINERY FOR AMERICA.

The correspondence received during the past month from nearly every State and Territory of the Union, making further inquiry concerning the machinery and processes employed in Germany for making fuel briquettes from lignite, peat, and coal dust, indicates that public interest in the whole subject of utilizing the hitherto wasted or neglected fuel materials, so abundant in America, has been thoroughly aroused. There are in New England, western New York, Michigan, Illinois, Wisconsin, Oregon, and Washington vast beds of peat which have been thus far hardly explored. There are in the Dakotas and the Gulf States large deposits of lignite and material midway in character between lignite and peat, and there are in all the coal-mining States enormous quantities of bituminous dust and anthracite culm, all of which may by the employment of modern machinery and processes be added to the fuel supply of our country.

As has been stated in these reports,* this is an industry in which the first tentative efforts made in the United States have generally failed, but which has been developed in Germany, France, and Belgium by long, careful, scientific experience into an important and successful system of production. There is no reason why any American operator or mine owner should risk a dollar in vague or hazardous experiments; he has only to ascertain by expert inquiry what his crude material contains—whether or not it is adapted to profitable conversion into briquettes, and, if so, by what processes and machinery it can be most effectively treated. With a view of answering concisely the latest inquiries on this subject and simplifying to some extent the practical proposition, the following résumé of the briquette manufacture, as it exists in Germany, is respectfully submitted.

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* See ADVANCE SHEETS Nos. 1466 and 1420; CONSULAR REPORTS Nos. 267 and 265.

German briquette factories are divided, in respect to the crude material employed, into two general groups—those which make household briquettes from brown coal (lignite) or carbonized peat, and those which produce the so-called "industrie briquettes," using as basic material coal dust or "slack," the waste of bituminous coal mines.

I. Household briquettes, as made in Germany from brown coal, peat, and to a small extent from anthracite dust, are used for grates, heating stoves, cooking stoves, and ranges, and constitute the principal household fuel of Berlin and other German cities. They are clean to touch, kindle readily, burn with a clear, full flame, and are cheaper in Berlin, ton for ton, than anthracite or good bituminous coal. They are made—largely from brown coal—in factories located mainly in Silesia, Saxony, and the Rhine provinces, and united in a syndicate which controls the output, regulates prices, and looks after the general welfare of the industry.

Machinery for the manufacture of briquettes from lignite is made by several large establishments, among which may be cited the Zeitzer Eisengiesserei, at Zeitz, in Saxony; the Maschinen Fabrik Buckau, at Magdeburg; and the Königin Marienhütte, at Cainsdorf, in Saxony.

The first illustration (see end of report) shows a miniature working model of a brown-coal briquette factory, which was exhibited by the Zeitz establishment at the recent exposition in Düsseldorf. It exhibits in condensed form the essential elements of such a plant—the machinery for pulverizing, elevating, drying, and finally compressing the material into briquettes.

There are in Germany 439 brown-coal mines, which produced last year 44,211,902 tons of lignite, valued at $46,042,500, or a little more than $1 per ton. Of this whole number of mines, 181 have each from one to six briquette factories, in each of which from one to ten presses are employed. The whole brown-coal-briquette industry of Germany includes 286 factories, with a total of 691 presses. Statistics of the total yearly product are not accessible, but from the fact that a single press turns out from 50 to 90 tons per day it will be readily inferred that the annual output is enormous. It is the standard household fuel throughout a large portion of this country, and is besides largely used for firing steam boilers, especially in cities where cleanliness and freedom from smoke and dust are highly esteemed. The standard household briquette is about 8 inches in length by 4 inches in width and 2 inches thick, and is retailed and delivered in Berlin at prices ranging from $2 per 1,000 in summer to $2.50 in winter.

The second illustration shows a brown-coal briquette factory, with three presses of horizontal type.

II. Industrial briquettes are used in Germany for firing locomotives and other steam boilers, for smelting in reverberatory furnaces, and for many other kinds of industrial heating. They are made of bituminous-coal dust, held together by a matrix of mineral pitch—that is, coal tar derived from retort coke ovens or gas manufacture, and from which the benzole and other valuable elements have been eliminated. Pitch of this quality costs in this country from $10 to $12 per metric ton.* The percentage of matrix necessary to be used varies greatly with the "fatness"—*i. e.*, richness in bituminous elements of the coal itself. Slack from very fat coal will work into briquettes with an addition of 2 or 3 per cent of pitch, while leaner grades may require 6 to 8 or even 10 per cent, the latter proportion being sufficient, at the present cost of pitch, to render such coal unprofitable for briquette-making purposes. Briquettes made from bituminous slack, although not smokeless, are much more nearly so than ordinary bituminous coal. When burned in locomotives or any well-constructed boiler or other furnace with a good draft, they create only a thin, translucent mist, which contains relatively little soot and is very different from the inky clouds that roll up from most factory chimneys where soft coal is shoveled indiscriminately into the furnaces. The one notable defect of such briquettes is that the mineral pitch, which is used as a binder, contains more or less creosote; this renders dust and fumes from such fuel acrid and sometimes irritating to the skin when confined in a close, hot boiler room. Soft-coal briquettes are made from the dust and waste of mines, and, when the composition of the coal is such as to permit a low percentage of binder to be used, they are the cheapest and easiest kind of briquettes to produce. They are made in machine presses more or less similar to the one shown in the third illustration, which is a typical machine of the Zeitz pattern, with a capacity of 90 tons of briquettes per day.

The output of soft-coal briquettes in western Germany is controlled by a syndicate called the Briquette Sale Syndicate of Dortmund, which includes among its members 31 factories, located in Westphalia and the Rhine provinces. These establishments employ, collectively, 112 machine presses of the Couffinhal type, besides 1 French machine of the Bourriez model and 3 so-called "egg-rollers," or machines which produce small, oval briquettes of egg size which are burned in certain kinds of tubular boilers. The syndicate claims a maximum annual capacity of 2,100,000 tons, and, as its official report shows, makes about three-fourths of that amount—whatever the market will take at prices which the syndicate managers consider equitable. Industrial briquettes are usually of a square or oblong form, convenient to be closely packed or built up into a wall, like bricks, whereby they greatly economize space as compared with raw coal. They range in weight from 3 to 10 pounds, and each bears the initials or trade-mark of the company by which it is produced, so that in case of any defect in quality the inferior briquette can be readily traced to its source of production. When burned whole, they are consumed slowly and give out a steady, moderate heat for a long time; when it is desired to quicken or intensify the flame, they are broken up, and in this condition are especially adapted to flue or tubular boilers, sugar evaporating, smelting, and annealing furnaces, in glass manufacture, or in porcelain and cement factories—wherever, in fact, a fuel capable of producing a long, fierce flame is desirable. Their efficiency as locomotive fuel may be inferred from the fact that the State railways of Prussia, which used 130,000 tons of such fuel in 1889, have bought from the syndicate 680,000 tons during the first nine months of 1902.

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* 1 metric ton=2,205 pounds.

Anthracite coal is so sparingly produced in Germany that the use of hard-coal dust for briquette making is relatively unimportant. Experts, however, agree that with an admixture of from 4 to 8 per cent of matrix, the manufacture of anthracite briquettes, which will bear transportation by sea or land in any climate, presents no technical difficulty.

As has been indicated in previous reports, the manufacture of coke and briquettes from peat or turf is still relatively in the experimental stage, although there are several factories in successful operation and another—largest of all—is just being put into operation at Königsberg, on the Baltic Coast of East Prussia.

The fourth illustration shows the principal peat-briquette factory in this country. It is located near Stettin, has been in operation several years, and is apparently successful.

III. As a result of the present widespread interest in this subject and the many inquiries that have been received from mine owners and operators for technical information as to processes, cost, and capacity of machinery, etc., a combination has been formed between three of the foremost machine builders in this country, whose products collectively include all the necessary apparatus for making briquettes from coal dust, brown coal, and peat. The purpose of this syndicate is to meet promptly and efficiently the American demand for machinery and working methods which represent the best results obtained by scientific study and mature experience in Germany. The combination is entitled "The Export Syndicate of Briquette Machinery Manufacturers." with central office at No. 59

Friedrich Strasse, Berlin, and includes as members the Zeitzer Eisengiesserei at Zeitz, Saxony, the Maschinenfabrik Buckau at Magdeburg, and the Maschinenfabrik (formerly Jaeger) at Ehrenfeld-Cologne. Its plan is to send over, within a few weeks, an experienced engineer, who will establish an office at New York and be prepared to confer with firms and persons who contemplate entering upon the manufacture of briquettes, to examine sites and materials, make plans and estimates for buildings, machinery, etc. An opportunity will be thus offered for American mine owners and operators to ascertain definitely in advance the theoretic value of their materials for briquette making and the cost of a plant of a given daily capacity.

Meanwhile, the same results can be reached with important saving of time if owners of coal mines or lignite beds will send to the above address, directly, or through this consulate, 10-pound samples of their material in the exact condition in which it will be available in large quantities for practical use. The percentage of water in any briquette material is an important factor in determining how it can best be worked.

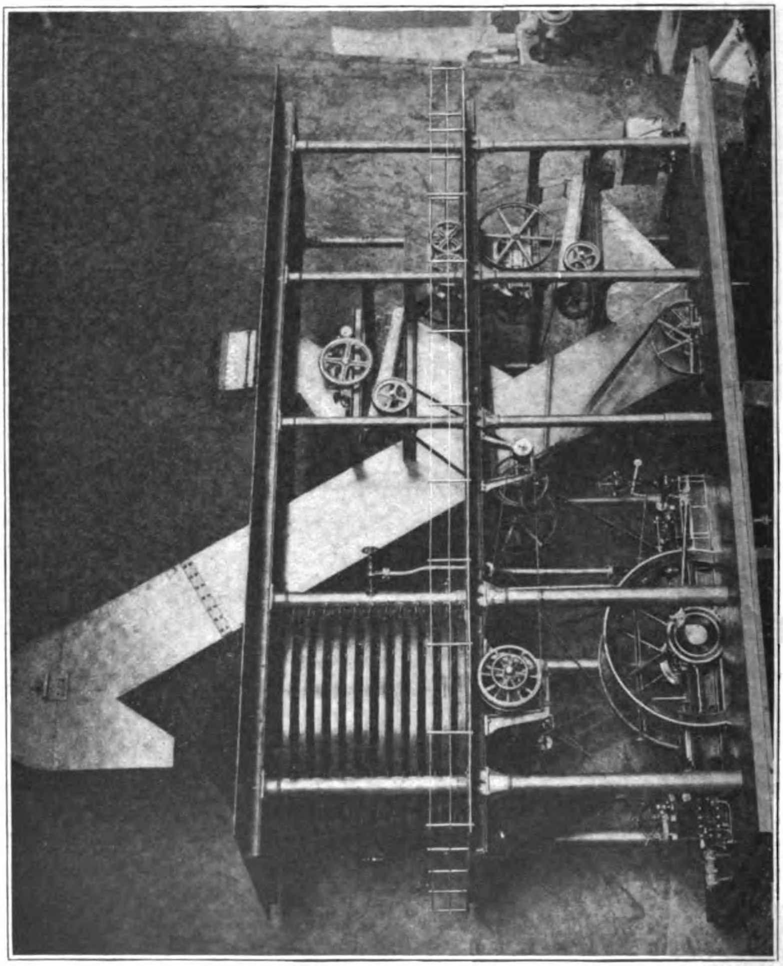
If the material is dry—as, for instance, slack from a well-drained bituminous-coal mine—the sample may be sent in an ordinary box or package. If, on the other hand, the slack or culm is obtained wet from a washing process, or if the material is lignite or peat from a bog, the sample should be sent in a tight tin case, which will preserve the exact percentage of moisture which will be encountered when it is mined for use on an industrial scale.

The postal-package treaty between the United States and Germany provides for the transmission by post, reciprocally, of packages not exceeding 5 kilograms (about 11 pounds avoirdupois) in weight at a uniform rate of 12 cents per pound. Allowing for the weight of the necessary covering, this will enable interested persons in America to forward to Berlin samples of their material sufficient in quantity to be analyzed, submitted to various tests and even made experimentally into briquettes; so that its adaptability to briquette manufacture, the percentage of binder required, the caloric value of the product, and methods and machinery best adapted to working it can be ascertained and reported on in advance, by responsible experts who are prepared to follow up their estimates by practical operations.

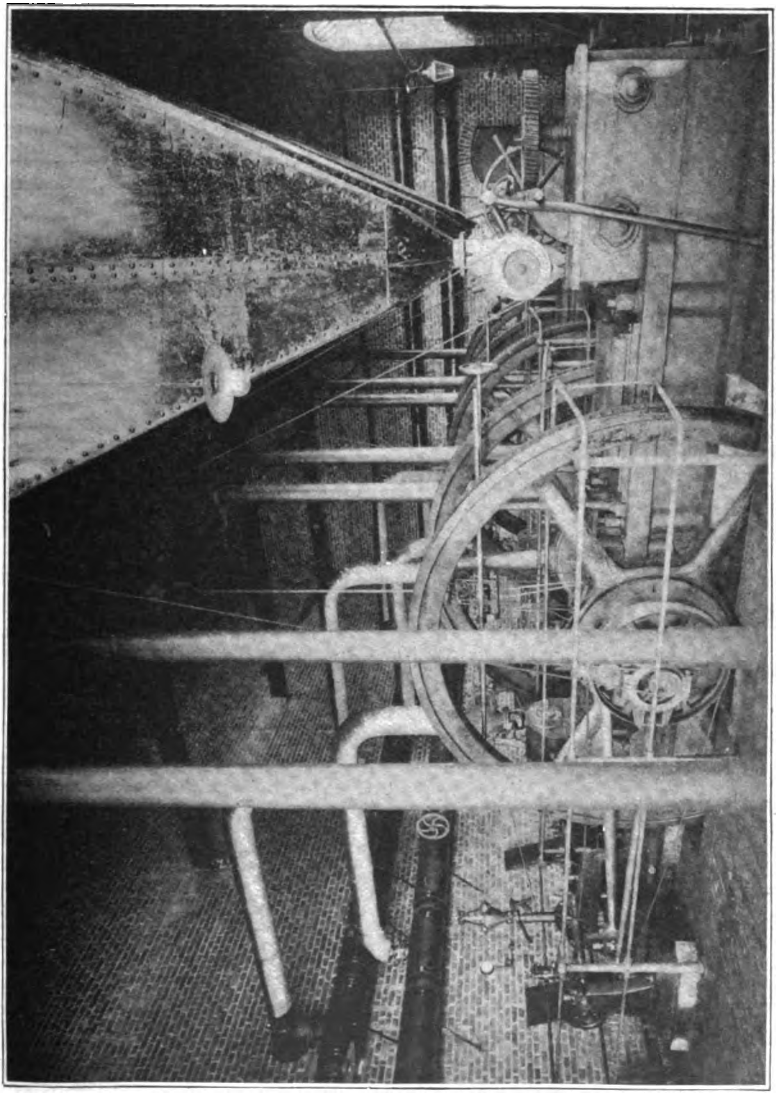
In this way, the technical experience and scientific knowledge which have made the briquette industry successful and important in Germany will be made directly available by American operators who desire to begin at the point of economic efficiency that has been attained by the best practice in Europe.

FRANK H. MASON,
Consul-General.

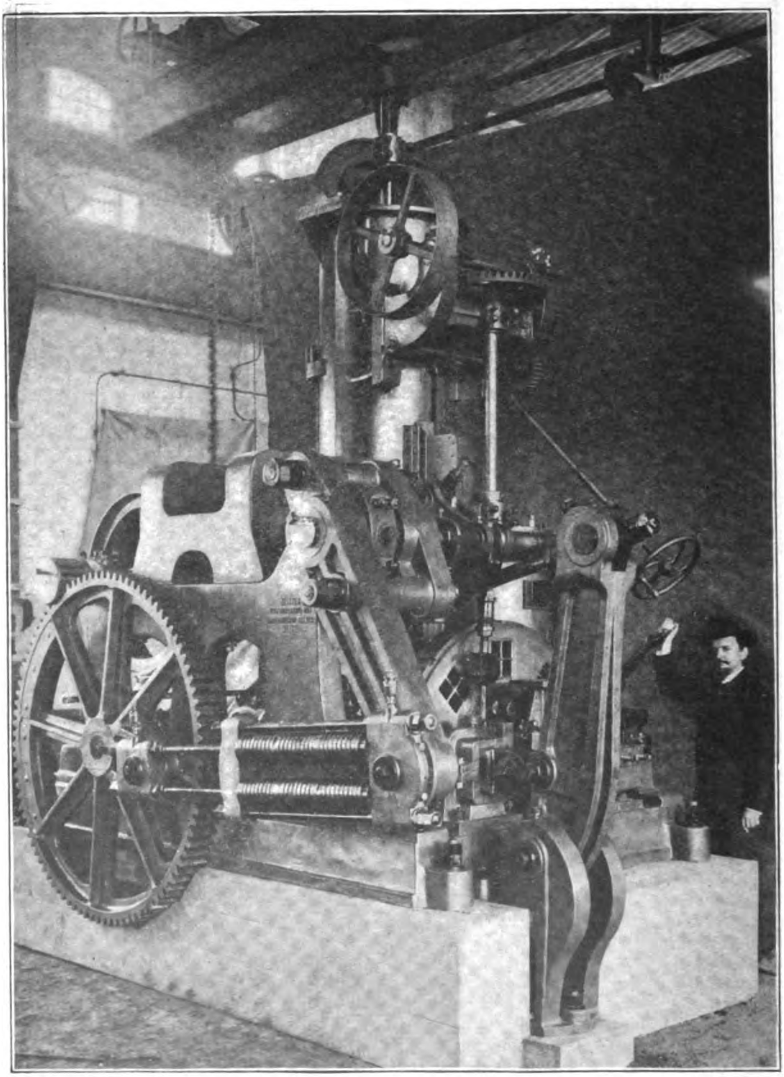
BERLIN, *November 20, 1902.*



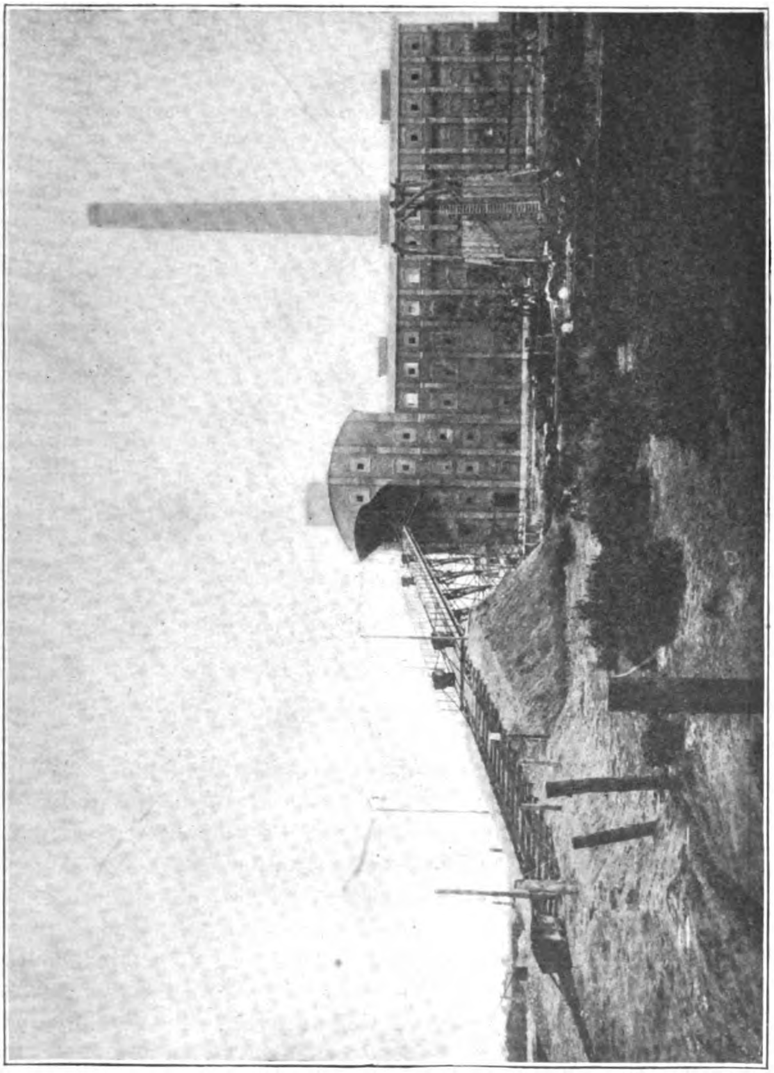
WORKING MODEL OF A BROWN-COAL (LIGNITE) BRIQUETTE FACTORY.



BROWN-COAL BRIQUETTE FACTORY, WITH THREE PRESSES OF HORIZONTAL TYPE.



MACHINE PRESS FOR SOFT-COAL BRIQUETTES (90 TONS PER DAY).



THE PRINCIPAL PEAT-BRIQUETTE FACTORY IN GERMANY.

INCOME-TAX STATISTICS IN PRUSSIA.

Consul W. A. McKellip, of Magdeburg, under date of November 25, 1902, sends translation of a newspaper article, which reads in part:

The entire taxable population of Prussia, according to the returns of 1901, number 34,056,414; 176 of this number were free from taxation as being extraterritorial, and 20,581,002 had an income not exceeding 900 marks ($214). From this we see that almost two-thirds of the entire population pay no tax whatever. From the remaining 13,466,236 inhabitants, only 11,834,518 come into consideration for purposes of taxation, as 1,631,718 persons are for especial reasons tax free. The total amount of the income tax paid was 168,127,100 marks ($40,014.250), and more than three-fourths of this sum, viz, 126,520,247 marks ($30,111,819). falls to the town population and only 41,606,853 marks ($9,902,431) to the country population. More well-to-do people, therefore, live in the cities than in the country. The taxes are distributed as shown below:

Income.		Number.	Amount paid.		Per capita.	
Marks.			*Marks.*		*Marks.*	
900 to 3,000	$214 to $714	3,210,831	47,600,000	$11,328,800	14.88	$3.54
3,000 to 6,000	714 to 1,428	279,935	25,400,000	6,045,200	91.78	21.84
6,000 to 9,500	1,428 to 2,261	75,740	15,300,000	3,641,400	201.32	47.91
9,500 to 30,500	2,261 to 7,259	63,773	29,700,000	7,068,600	464.06	110.45
30,500 to 100,000	7,259 to 23,800	13,384	23,200,000	5,521,600	1,841.27	438.22
100,000 and over.	23,800 and over.	2,774	27,000,000	6,426,000	10,188.68	2,424.90

RHENISH LUMBER MARKET.

The Rhenish lumber and railroad-tie market depends for orders to a considerable extent on the manufacturers in the industrial regions bordering the River Rhine, and as business in Germany generally has been slack, the Rhenish lumber trade has suffered materially. The large stocks which nearly all dealers had on hand also had an unfavorable influence on the market. Owing to the high prices of wood prevailing about a year ago, the Government forest officials placed large quantities of timber on the market—far more than could be disposed of. In February, a heavy windstorm blew down hundreds of thousands of cubic meters of timber in the Vosges and Black Forest. In the neighboring French districts, the storm had done even more damage, so that no sales could be made to these usually regular customers. The Government forest officials tried hard to maintain the high prices by placing these enormous quantities of wood on the market gradually and in small lots, but quotations for fir lumber are at present 20 to 30 per cent lower than last year. It is feared that the large dealers will suffer heavy losses in disposing of their stock. An improvement of affairs within the next few months can not be hoped for.

The hard-wood market may be said to be in a more favorable condition, although its fat years have also come to an end. Really good oak continues to be much in demand, and high prices are paid for it. Joiners and manufacturers of railroad cars are more and more demanding first-class material. As much as 80 to 100 marks ($19.04 to $23.80) is frequently paid for a cubic meter of oak. Beech beams find willing purchasers at 13 to 15 marks ($3.09 to $3.57) per cubic meter.

OLIVER J. D. HUGHES,
Consul-General.

COBURG, *November 28, 1902.*

IMPORT OF WOOD INTO HAMBURG.

During the past year, the import of wood into Hamburg amounted to $4,379,200, not including $2,610,000 for basket hoops, bark, tan, and piassava. Compared with 1900, there was a decrease of $309,400—due principally to a decline in the import of hickory from the United States, which amounted to $1,213,800 in 1900 and to only $975,800 in 1901. The import of cedar amounted to $404,600. Timber comes chiefly from the harbors of Russia and Prussia which border on the Baltic Sea. The dearer kinds of wood, like West Indian pockwood ($34,034), Brazilian and East Indian jacaranda wood ($28,084), boxwood from the West Indies and Venezuela ($25,704), and veneer from Russia, France, and Great Britain ($428,400) were also received in smaller quantities than last year. Imports of cork wood, mahogany, staves, and ebony show an increase. Cork wood worth $1,094,800 was imported, of which $785,400 worth came from Portugal and $238,000 from Algeria. The import of mahogany amounted to $714,000 in 1901 and $642,600 in 1900, and that of ebony to $127,568 in 1901 and $110,194 in 1900. Mahogany comes chiefly from West Africa, the West Indies, Colombia, Venezuela, Mexico, and Central America, and ebony from West Africa. Hickory is furnished mainly by the United States.

J. F. MONAGHAN,
Consul.

CHEMNITZ, *November 28, 1902.*

LUMBER TRADE IN BELGIUM.

In Belgium there are no extensive forests or timber lands, and wood for all purposes must be imported. Large quantities of lumber are now arriving at Antwerp and Ostend for use during the coming year. Much of this lumber is pitch pine, but there is also hard wood, principally oak and walnut, and quantities of bent and turned hickory. During 1901, the declared importation of oak and walnut from the United States was 24,986 cubic meters (882,420.5 cubic feet), valued at $928,263.59, in a total of $5,175,528.92.

Importers speak favorably of the quality of American lumber, and the purchase price f. o. b. New York is often lower than for the Russian, Norwegian, or Swedish product, but the question of freights is important. There are no steamers engaged exclusively in the lumber trade between American and Belgian ports, as there are from Scandinavian and Russian ports; therefore, cargoes are rarely sent direct.

The lumber trade of Ghent is handled in various ways. Some consignments are received direct from the foreign country and some are purchased on the wharves, at auction, after the steamers arrive. Small dealers make their purchases through importers in Antwerp and Brussels.

As important importers, I mention:
Burm, at Zele, Belgium.
Jannaert, Brussels, Belgium.
Alberts, at Middlebourg, Holland.

FRANK R. MOWRER,
Consul.

GHENT, *October 24, 1902.*

AN AMERICAN BREWERY IN GHENT.

The business most in evidence in Ghent is that of the breweries. In a population of less than 200,000, there are more than 100 establishments, large and small. Notwithstanding this competition, American enterprise has entered the field. The object in starting this brewery was to furnish Belgium a prime lager beer, absolutely pure, as it is claimed that there is much variation in the local product and that that imported from Germany is not always stable, particularly during the summer months, as it must travel so many hundreds of miles in casks before being marketed.

The entire plant of the American Brewery, with the exception of some copper vessels, has been brought from America. The nine glass-enameled steel tanks, each weighing 5,500 pounds empty and holding 135 hectoliters (3,445 gallons) when full, were likewise sent from America. The beer never comes in contact with the atmosphere. Sterilized air only is admitted, under perfect regulation, during fermentation. The racking machine racks from storage to trade casks and bungs while the beer is still under counter pressure, without the loss of a particle of gas or beer. The entire work of the racker is done by compressed air.

The yearly output will be 10,000 to 12,000 hectoliters (264,000 to 316,800 gallons), and with little trouble and expense the capacity could be doubled or even trebled. The outlook is bright.

FRANK R. MOWRER,
Consul

GHENT, *October 30, 1902.*

THE OFOTEN RAILROAD AND THE FISH TRADE OF NORWAY.

The commercial relations between the northern ports of Norway and Russia have been steadily increasing, in spite of the insufficient means of communication hitherto existing; but as the Ofoten Railroad and Swedish main line have now been opened, traffic will become still more considerable.

Russia is already a good customer for Norwegian fish. Now, as the Ofoten Railroad—the most northern in the world—has been opened, the fish consumed in Russia (which may be more than the Norwegian market can supply) will, of course, be forwarded by rail; consequently, the shipments of dried fish will decrease as the export of fresh fish proves profitable. The prices of Lofoten cod were so high this year that the dry-fish producers had poor returns.

It is also expected that frozen fish will be sent from Narvik to the northern provinces of Sweden, and preparations are being made to carry on this business on a large scale.

VICTOR E. NELSON,
Consul.

BERGEN, *November 22, 1902.*

DELAYED ORDERS FOR AMERICAN GOODS.

I have recently received complaints from buyers of American goods here that not only were they not receiving on time the goods ordered, but were not being courteously treated, in that they were not given reasons for delay or any definite assurances as to the dates of shipment. Manufacturers in the United States being very busy, I have no doubt that the buyers who can meet them in their own clubs, or reach them by telephone or telegraph or by fast mails from near-by points, are by that accessibility able to be so persistent that they receive the goods which in proper turn should be sent abroad. It will not, I hope, be regarded as offensive if I remark that it is not a far-sighted business policy which yields to local importunities and neglects foreign opportunities, present and prospective.

In the middle of October, the representative of a Birmingham firm called to tell me that he had given an order in May last to an Indiana manufacturer, and had not up to date received the goods or even an intimation when they were likely to come. I took it upon myself to write to this manufacturer, urging, as I recollect, that if he could not ship the goods, he should at least write a polite letter to the British buyer, explaining the cause of the delay. The Indiana manufacturer accepted my intermediation, apparently without regarding it as meddling, and wrote me that the Birmingham concern having requested the goods to be sent in one shipment, the order had been delayed "on that account and also on account of labor troubles and many orders ahead." He added: "We are catching up with orders and can make the shipment in a few weeks." When I sent a copy of the letter to the Birmingham firm, they said this gave them the first information they had had on the subject, and they thought that not only should this Indiana manufacturer have written them direct, but that he should have stated the cause of the delay at an earlier date.

This morning I received from an important firm in a big city in my consular district a communication which I will give below as fully as I can without identifying the concerns involved. The manufacturer says:

> I do not know whether it is any use writing to you on the subject, but we are having a bitter experience in buying goods from America just at present. A few years ago, manufacturers in this unfortunate country were severely blamed for not being punctual in deliveries. Those in your country seem now to have gone us one better, or rather one worse. Thus, for example, early in June last we ordered ——— tons of bright drawn-steel rods, made by the well-known ——— Company. We were promised shipment from New York, half the order the middle of August and the other half the middle of September, and to get deliveries we agreed to pay £3 or £4 ($14.59 or $19.46) higher than we could buy in this country.

I should by way of comment state here that I doubt if they could buy goods of the exact quality in this country at any price, but they could buy rods which could be used in a fairly satisfactory manner, provided they went to the trouble of changing "the speed" of their automatic machinery. A friend asserts the change in speed is sufficient, but I have heard a good authority claim that a change in tools was also necessary. United States manufacturers of drawn-steel rods have, in my opinion, never made a sincere effort to get foreign business—possibly owing to the great demand at home—though there has been excellent opportunity, and they have been frequently advised of the fact in consular reports and by American manufacturers of automatic machinery, to whose interest it is to have the stock used on their machines more even in character and size than the general class of English rods.

The letter continues:

> Up to the present time, I have had no deliveries at all, and although we were told that a carload was to be shipped by the steamship ———, on the ——— of November, apparently this has not taken place, as that steamer is in. We have been buying this brand of steel in small quantities from other sources to keep us going, and have paid as much as £5 ($24.33) a ton extra to get deliveries. It is obvious we can not continue to use this steel (as we have done for several years) much longer, and must return to our own manufacturers in this country.
>
> Another illustration of the state of things is furnished by the ——— Company, of ——— City, Conn. I placed an order with their London agent for the delivery of a large piece of machinery in August last. They undertook to ship in eight weeks. We are now reaching the end of November, and I have heard nothing about the machine being dispatched, and so on. Forgive my pouring these grievances into your ear in this way, but "the iron (or more correctly, steel) has entered into my soul."

MARSHAL HALSTEAD,
Consul.

BIRMINGHAM, *November 21, 1902.*

ADVICE TO EXPORTERS TO SCOTLAND.

In a letter to the Philadelphia Museums (the original has been forwarded) Consul R. Fleming, of Edinburgh, gives the following information:

COMMERCIAL TRAVELERS.

The question of chief importance to our manufacturers is how to introduce or extend the sale of a special article or special line of articles—whether to place it wholly in the hands of local agents or to send men to work up trade. The difference between American and Scottish business methods is a matter of common knowledge to all our exporters; it is a difference of temperament and of customs. We are in the habit of "pushing trade," and are not satisfied with slow returns. If I were asked whether, in my opinion, an American is a better seller of American goods in Scotland than a Scotsman, I should answer in the affirmative, but with the qualification that the American salesman must have the tact to adapt himself rigidly to the business ways and social customs of the country. Enterprise counts, if wisely directed and if there is back of it a good-humored patience and a thorough respect for the ideas and methods of the commercial community in Scotland. The foreign salesman who becomes a critic is a failure. He can sell nothing. I had a talk on this subject recently with an American agent of an American manufacturing concern who has had more than a year's experience in England and Scotland, and, I may add, has been very successful during the past six months. He said:

> My company entered this field about two years ago, establishing a general agency in London with an American in charge, and sending across a dozen salesmen, some of whom had done excellent work in our country as commercial travelers. Only three of these men were here at the end of a year. Nine had not earned their salt, and were recalled. The trouble was with the men—not with the machine which they were introducing. None of us had been in Great Britain before and we knew little about business customs on this side, and less in regard to the characteristics of the people. During the first three months, I frankly confess, I pursued a foolish course. I had adopted the wrong attitude at the start in assuming that I knew better than the merchants and shopkeepers what were their requirements and how to conduct their businesses. Finally it dawned upon me that I was not here to change the commercial methods but to sell machines, and that the only way to do business was to accept conditions as they were and to get into harmony with them. From that day, I have been successful. All my early ideas about business men and methods in Scotland have undergone a radical change. Not only the wholesale merchants but also the shopkeepers are, as a rule, remarkably clear-headed men, with a perfect knowledge of their own affairs and interests; always ready to spend money in order to make money, and each relying absolutely upon his own judgment as to the merits of any article brought to his attention.

Within the limitations which I have indicated, the enterprise of American commercial travelers or agents and of those of the Continent, notably Germans and Russians, is effective. I need not go into details as to what methods are specially useful. They are the methods common in our country. For example, the American agent of a computing scale company began business in a Scotch city by going to all the principal grocers and butchers, making a purchase at each shop, taking a memorandum in each instance of the weight and cost. Afterward, when he invited them to come to his place of business and see the computing scale, the agent was able to show each exactly what he had lost in that small transaction. All legitimate plans of selling machines or goods can be as effectively applied here as in America or elsewhere by one who fully understands the national or racial temperament.

LABOR-SAVING MACHINERY.

American manufacturers are aware of the hostility of British workmen to labor-saving machinery. Some of our makers of machinery have had experience of this antagonism in British shops to any new devices for increasing the output without increasing the labor cost, and they have learned to expect that their machines sold in England or Scotland must at first undergo a severe test at the hands of unfriendly operators. I have in mind the case of a Scotch sawmiller who purchased in America an improved device for one branch of his business, which was guaranteed to do one-third more work than the apparatus he had long been using, without any additional labor cost. For some weeks after the machine was installed, there was no greater output. He questioned his workmen and watched them, but could discover no delinquency on their part. Confident, however, that they were not giving the machine a fair trial—he had seen it operate in America and knew what it would do under favorable conditions—he resolved to get at the difficulty, and, giving the men a holiday one Saturday, he went to the mill with his superintendent, and they operated the machine with far better results than had been obtained by the workmen—in a word, it did exactly what the makers had said it would do. On Monday morning the sawmiller told his men that if they wished to continue in his employ they must turn out a certain amount of work per hour with the new machine. He had no reason thereafter to find fault with either the machine or the men. This incident is one of many that might be related, showing that our manufacturers of labor-saving apparatuses must always have in view, when selling to new customers on this side, the probability that their machines will not receive friendly or fair treatment from workmen at the start.

NOTES.

On the general subject of the development of our trade here, I present a few observations, which are intended as suggestions:

1. Scotsmen have a decided preference for Britsh-made goods, if equal in quality and not markedly higher in prices than foreign competing articles. To sell foreign competing goods in Scotland, it is necessary, as a rule, to offer a superior grade at the prevailing prices, or standard goods at prices below the quotations for the home articles. American goods are preferred to any other foreign products.

2. In the case of a novelty or a noncompeting article, or of a competing article greatly superior, price is a secondary consideration with the average Scotsman. If he wants it he will buy it, provided the price is within reason.

3. In offering machinery of any kind here, it is a mistake to make extravagant claims as to what it will do. A moderate statement of its advantages is far more likely to lead to a sale.

4. Merchants and manufacturers wish to deal with a duly commissioned and responsible representative of the firm or company seeking to do business with them—an agent authorized to make a definite and binding contract.

5. In almost all lines of trade, c. i. f. quotations are required.

6. In every pound of promise a Scotsman expects to find sixteen ounces of performance.

CREDITS AND GENERAL TRADE TERMS OF BRITISH INDUSTRIES.

The following extracts are from the annual report of Consul R. Fleming, of Edinburgh, which will appear in full in Commercial Relations, 1902:

Among European countries, Germany has long been noted for the free extension of credit in business transactions, both at home and abroad. A close second in this respect is Belgium; next in order, according to the common opinion, is Great Britain. Until a decade ago, British manufacturers had not met with strong competition from their continental neighbors in any part of the world, and they established their trade upon the safe basis of moderate credits. The expanding trade of these progressive nations, especially of Germany, and the vast growth of the industries and commerce of the United States changed the old easy-going conditions, and for six or seven years the British manufacturer and trader have had to reckon with active competition in almost every market. It is about four years since German manufacturers, in the struggle for markets, began to lengthen credits. Whether they have failed, or how far they have succeeded in their object, need not be here considered. They have at least made more severe the strain upon British industries.

With a view of ascertaining whether or not British manufacturers have been forced to abandon the path of conservatism by the intense competition of other nations, I have made an inquiry into credits and other terms of various industries in the United Kingdom. This investigation has covered the average length of credit, average discounts, and general trade terms to responsible British and foreign customers. It seems needless to say that many difficulties have been encountered in pursuing this inquiry, but I think that a fair measure of success has been attained, and that the results may be useful to American manufacturers and exporters.

The information here presented has been obtained in the respective centers of the industries included in the list, and it is, I believe, as definite and as nearly accurate as any investigation of diverse and competing interests could produce. As to some industries, the statements elicited are vague; but considered in connection with the facts given in regard to related branches, they are not without value.

It appears to be conclusively shown that among the trades or branches of industries embraced in this inquiry, there has been no lengthening of credit, in either the home or foreign markets, except in the cutlery, silver and plated ware, and pumps and pumping engines trades; that there has been, on the contrary, a tendency toward restriction of credit in some industries; that British manufacturers have met the new competition by a reduction of prices or, what means the same thing, an expansion of discounts.

A specially interesting fact is that the cotton-goods trade with China and India at the present time is practically on a cash basis.

The paragraphs have been arranged without reference to the relative importance of the several industries, but in alphabetical order, for convenience.

Blast-furnace plant.—As a rule, terms are part of special contract in each case. The ordinary agreement is for payment of one-third on inspection, one-third on shipment, and the balance as soon as the plant is in operation.

Boilers, steam.—Net cash on delivery, as a rule. To both home and foreign customers, the terms sometimes quoted are one-third with order, one-third on receipt of bill of lading, and the balance in 1 clear month net.

Bolt and nut making machinery.—Generally cash on erection. Sometimes one-third with order and the balance on erection, net, or 30 days' grace.

Brick and tile making machinery.—Length of credit ranges from 3 to 6 months to both British and foreign buyers; but usually one-third of the net price must be paid with order. There has been no lengthening, but rather a restriction, of credit.

Boots and shoes.—Trade terms vary according to individual circumstances, discounts ranging from 6½ per cent for cash (which practically means within 7 days), 5 per cent at the month to a decreased and vanishing discount for a longer period of credit; about 5 months net. Terms are practically the same to home and foreign buyers, except that the foreign business rests largely upon bills of exchange, not accounts. The length of credit to foreign merchants has not been extended in any general way for several years.

Chemicals.—Length of credit is 14 days net, but 2 per cent discount is allowed for cash and goods guaranteed. This applies to trade in Great Britain and colonies and South America. No trade is done with Russia, as the duty exceeds the cost and freight of chemicals; and if trade were done with that country, I am informed that it would mean special terms, on account of the great risks involved. There has been no expansion of credit in recent years, and it is not considered that German or other continental or American competition has yet made any material change in British terms.

Cotton goods.—In Great Britain the usual terms to merchants are monthly—that is, goods delivered between the 20th of one month and the 19th of the following month are paid for the first week of the succeeding month; to shippers, however, the terms are 7 to 14 days. To buyers in South Africa, the present basis is 6 months' credit, owing to the general circumstances brought about by the late war. To buyers in China, the terms are 60 or 90 days, which means practically cash, as bills of lading are sent through bankers and taken up by payment by the consignees.

To Indian buyers, the terms are 30 days, and, as the bills of lading go through bankers, this really means cash. The trade in South America has been in a very unsettled state for some time, and failures have hit British houses hard. The bulk of the trade is done on 3 to 6 months' credit, but the tendency is to restrict credit in that quarter.

Cutlery.—Discounts range from 5 per cent at 30 days in the home trade. Manufacturers offer very extended credit in the foreign trade, 6, 12, or 18 months being common terms, particularly in Russia, where the longest terms obtain. German competition is most keenly felt in India, where the German manufacturers offer almost any length of credit.

Cycles and cycle parts.—The general terms appear to be 5 per cent at 30 days, or 3 months net, for Great Britain; for the colonies and South America, cash against documents net. No lengthening of credit has been accorded in recent years.

Dairy machinery.—From 3 to 6 months' credit on bill is allowed to foreign buyers on two-thirds of the net price. The rule is to require one-third with order. In some cases, home buyers get more liberal terms.

Engines, gas.—Terms in Great Britain are 1 month, payable during the week following the expiration of the month. Some firms have a deferred system, payment of one-fourth before delivery and the balance spread over 18 months net. The extensive concerns do all their foreign business through agents, sending out large consignments. Foreign terms are according to circumstances.

Engines, portable.—Average terms to responsible buyers do not appear to have changed within the past 20 years to any considerable extent. In most cases these are strictly net prices on delivery. Some large concerns, however, occasionally quote as follows for their foreign trade: One-third with order, one-third on delivery, and one-third at 1 clear month net.

Engines, stationary steam.—Ordinary terms to home and foreign buyers: Cash on delivery. With some manufacturers, cash within a clear month to buyers in Great Britain is the rule.

Fancy goods.—Length of credit to British and foreign buyers: Two months at 2½ per cent discount, or 1 month at 3¾ per cent discount. No expansion of credit within the past 5 years.

Forgings, iron and steel.—General terms in this trade are cash on receipt of bill of lading, which apply to home and foreign markets alike. The exceptions to the rule are few, especially in the foreign trade.

Furniture.—The usual credit in the furniture trade is about as follows: Great Britain, 6, 9, to 12 months' account, according to status, or 2½ per cent discount for cash in 30 days; colonies, 6 months' bill or 2½ per cent discount at 30 days and an extra 1¼ per cent prompt; Russia, 30 days' bill or 2½ per cent discount cash against documents. These terms do not appear to have been extended within the past 4 years.

Gloves.—The usual terms of sale are: One month at 3¾ per cent discount, or 2 months at 2½ per cent discount. Terms are practically the same for all countries. No lengthening of credit within the past 5 years.

Hardware.—As a rule, the terms are 2½ per cent, 30 days' or 3 months' account net, for Great Britain, and for the colonies and South Africa, cash against documents net; Russia, usually 6 months' acceptance net. It is said by leading men in the trade that there has been no change in terms or length of credit for some years.

Hosiery.—Accounts for goods bought, say, in September at 3¾ per cent discount are due in October, and accounts for goods bought before the 20th of September at 2½ per cent discount are due in November; if purchased after the 20th of September, due in December, 2½ per cent discount. These are the complete terms and general for all countries, having been in vogue for some years.

Hydraulic machinery and appliances.—Average terms have not changed for several years. In most cases, payment of net prices on delivery is required; but there are foreign transactions on the basis of one-third with order, one-third on delivery, and the balance in 30 days net.

Laundry machinery.—Usually to buyers in Great Britain the credit runs from 3 to 6 months. There is no common rate of discount, so far as can be ascertained. To foreign buyers (this trade is not large), the rule is to require one-third with order, one-third in 3 months, and the balance in 4 or 6 months. There has been a restriction of credit in this branch of trade lately, as in some other classes of machinery.

Locomotives.—The average terms quoted and the usual terms of the trade are cash on delivery. Latterly, in some cases a month's credit has been allowed; also, if expressly mentioned in the specifications, one-tenth of the purchase money is retained until an agreed number of miles has been run by the locomotive. Continental competition has had no effect upon terms in this industry.

Milling machinery.—The tendency in this trade has been toward a restriction of credit. The length of credit to foreign buyers runs from 3 to 6 months. The rule is, where credit is asked, to require one-third with order and one-third in 90 days, and the balance in 4 or 6 months. Home buyers have somewhat better terms. Rates of discount vary, and the average rate can not be stated.

Mining machinery and tools.—A mining plant is usually contracted for on definite terms of payment, such as one-third on inspection at works, one-third on shipment, and one-third on erection. The average credit on tools, etc., is as follows: Great Britain, 3 months' account net, 2½ per cent discount at 30 days; colonies, 6 months' acceptance or 2½ per cent discount at 30 days and an extra 1¼ per cent prompt; South America, 60 days' bill or 2½ per cent discount at 30 days and an extra 1¼ per cent prompt; Russia, 30 days' bill or 2½ per cent discount for cash against documents. Term of credit has not been extended within the past 4 years.

Paper.—Average trade terms at the present time: Great Britain, 3 months' account net, 2½ per cent discount on monthly account, 3¼ per cent discount prompt cash; colonies, six months' bill, 2½ per cent clear 30 days, 3¼ per cent prompt cash; South America, three months' bill, 2½ per cent discount clear 30 days, 3¼ per cent discount prompt cash; France, the same terms as for South America. There has been no general extension of the period of credit to foreign buyers within 5 years.

Papermaking machinery.—To foreign buyers, the average terms are payment of one-third with order, one-third in three months, and one-third in 4 or 6 months. British buyers have a longer credit, as a rule, if desired; but there has been no extension of the period of credit in recent years to either the home or foreign customers. Discounts vary, according to circumstances, and the average rate can not be stated.

Pottery.—The general trade terms to home buyers are 5 per cent discount 1 month from date of invoice, and 2½ per cent discount at 3 months, but some china manufacturers have different terms, which also differ somewhat from the terms of earthenware concerns. Manufacturers say that there has been no material change in British trade terms due to German or French competition, but that the earthenware industry is suffering from American competition. Terms to foreign buyers are generally cash, but if credit is granted it is usually by 3 months' bill with 5 per cent discount. The period of credit has not been extended within 4 years. Most manufacturers doing a foreign trade have no experience of credit transactions, especially in the case of American and colonial buyers.

Pumps and pumping engines.—To buyers in Great Britain, the terms are monthly, with no specified discount. The present tendency is toward a lengthening of credit. Export business is not large, and terms can not be ascertained.

Rolling-mill plant.—In most cases, definite terms of payment are stated in the contract—usually one-third on inspection, one-third on shipment, and the balance on the erection of the plant.

Rope and twine making machinery.—Cash on delivery or 30 days, according to circumstances. Discounts vary from 5 per cent.

Sanitary appliances.—Terms in most cases are a matter of arrangement between manufacturer and buyer, trade discounts from catalogue prices being expansive. Taking an average, the following appear to be the terms: Great Britain, 3 months' account net; monthly account, 2½ per cent discount; colonies, 6 months' bill or 2½ per cent discount at 30 days; Russia, 1 month's bill or 2½ per cent discount cash; South America, 2 months' bill or 2½ per cent discount, 30 clear days; no extension of credit period in recent years.

Silver and plated ware.—Long credit is given in this trade, varying from 6 to 18 months. This applies to both the home and foreign trade. Discounts range from 10 per cent at 30 days. German competition in the cheaper lines has been keen for some years in the British market and abroad, and the length of credit and other terms of British manufacturers have been somewhat affected so far as regards the cheaper goods.

Springs.—Average terms in Great Britain, 3 months' account, 2½ per cent discount at 30 days; for the colonies, 6 months' acceptance or 2½ per cent discount at 30 days; Russia, 30 days' acceptance or 2½ per cent discount for prompt cash; South America, 2 months' bill or 2½ per cent discount at 30 days.

Stoves and ranges.—General terms of trade are as follows: In Great Britain, the length of credit is usually 3 months; in continental markets and the colonies, 1 month from date of delivery, which is practically cash. Discounts vary greatly, ranging from 10 to 33 per cent off price list. German competition has to some extent influenced British prices, and manufacturers in Scotland are making strong efforts to neutralize this competition by arranging suitable terms with customers. But there has been no extension of the credit period in foreign markets; in fact, the tendency is the other way.

Structural iron and steel.—Foreign terms are cash on delivery or on receipt of bills of lading. Inland trade is principally by contract, and where cash terms are not quoted the credit is according to special contract terms, which, of course, vary. In this industry a fair amount of shipping is done through London shipping agents, who may quote different terms to foreign customers, especially in South Africa. German or other continental competition has not made itself felt to any noticeable degree in this branch of the iron and steel trade, and the terms are similar to those quoted 5 years ago.

Sugar machinery.—The rule is, payment of net prices on delivery. This applies to both home and foreign customers. Foreign sales are sometimes made on these terms: One-third with order, one-third on delivery, and the balance at 1 clear month.

Textile machinery.—The ordinary terms to colonial and foreign buyers are payment of one-third with order, one third in 90 days, and the balance in 120 or 180 days, according to circumstances. To buyers in Great Britain, the terms are somewhat more favorable, but upon the same basis. Of course, in some special cases credit is extended to 1 or 2 years, but the tendency of late has been to restrict these special terms and adhere as far as possible to the general. There appear to be no recognized rates of discount, and where this is allowed it is entirely governed by circumstances.

Tools, hand.—The trade has not been materially affected by continental competition, the American manufacturers being far more aggressive and successful in several lines of this department of industry. Credit and discounts remain as they were some years ago. Average terms in Great Britain, 90 days' account, 2½ per cent discount at 30 days. Hand tools for the foreign markets are for the most part bought through London merchants. Ordinary terms for the colonies, 6 months' acceptance or 2½ per cent at 30 days and an extra 1¼ per cent prompt; Russia, 1 month's bill or 2½ per cent discount for cash; South America, 2 months' bill or 2½ per cent discount at 30 days and an extra 1¼ per cent prompt.

Tools, machine.—An average discount of 2¼ per cent is allowed and in some cases 5 per cent to merchants in Great Britain who pay at 1 month; extreme length of credit, 6 months net. Foreign buyers who ask for credit are, as a rule, required to pay net prices, ordinarily one-third with order if desired, one-third in 90 days, and the balance in 120 days. Length of credit to foreign purchasers has not been extended within 4 years. In the lathe trade, for inquiries made through merchants, the manufacturers allow generally 5 per cent at 1 month. Goods ordered otherwise than through merchants are, as a rule, payable on receipt of bill of lading. Foreign trade is on the same basis.

Tubes, iron and steel.—Average terms to responsible buyers are as follows: Great Britain, 3 months' account net, 2½ per cent discount on monthly account, 5 per cent discount spot cash; colonies, 6 months' bill net, 5 per cent discount cash against documents in London; South America, 2 months' bill net, 5 per cent discount against documents in London; Russia, 1 month's bill net, 2½ per cent discount cash against documents here. There has apparently been no lengthening of the credit period to foreign buyers within 5 years.

Woolen goods.—Discount about 4 per cent for cash or 2½ per cent 1 month. The usual terms for the colonial trade are: Credit, 6 months' bill net or 2½ per cent at 30 days. Norway, 2½ per cent at 30 days and 6 months' bill net. Severe losses have been experienced by the British woolen manufacturers in the Russian trade, and they are now practically out of that market, which is largely supplied from Germany. There has been no expansion of credit in the home, colonial, or continental trade within the past 4 years.

BRITISH DUTY ON GRAIN.

There are wide ramifications in the British finance act of 1902 levying an import duty on grain and the milled products of grain. The inclosed article, printed in the October 30 issue of Sell's Commercial Intelligence—a militantly British publication—is an interesting presentation of the workings of the law, and needs no comment. I may, however, be permitted to add that I saw it stated in cablegrams sent from the United States, immediately after the passing of the act, that American millers were arranging to cut their profits, and that American railroads were likewise arranging to so alter the classifications of grain and milled products of grain that seaboard shipments could be carried at lower rates, the reductions upon the part of producer and carrier being designed to meet the new British tariff. I have believed the business was being retained by these methods, but Commercial Intelligence claims the British system of analysis assists the foreign millers, these "astute" individuals having "mystified the board of customs."

Of course it is a fact within the knowledge of business men that in making prices on goods for foreign shipments, manufacturers and merchants of all countries have nearly always, and rail and sea carriers have at times, had to bear in mind the tariff exactions of the country to which the goods were consigned; and in a recent report* I inclosed an article from the Birmingham Daily Mail which showed that our fruit people had already learned the foreign method of meeting a hostile tariff, as tinned fruits were sold here at a price "ridiculously low." The article added:

> Although there is a heavy duty [finance act, 1902] on these goods, they have been sold in England at lower prices than were obtained before the duty was imposed.

The Mail informant said California growers had discovered that they were overdoing it and some of the largest and best growers and packers were combining, as they believed they could by agreement get better prices for best grades.

The hundredweights referred to in the inclosed article are the British measure of 112 pounds.

MARSHAL HALSTEAD,
BIRMINGHAM, *November 19, 1902.* *Consul.*

THE CORN TAX IN OPERATION—STRANGE REVELATIONS AS TO THE [BRITISH] OFFICIAL VIEWS OF WHAT CONSTITUTES GRAIN AND THE MILLED PRODUCTS THEREOF.

The finance act, 1902, levied an import duty on grain of 3d. (6 cents) per cwt. and on the milled products of grain of 5d. (10 cents) per cwt. The duty on maize was fixed at 1.5d. (3 cents) per cwt. in order not to press too heavily on the poorer classes in Ireland, who use it as food. Offals which are used as feeding stuffs for cattle pay a tax of 1.5d. (3 cents) per cwt. and include the bran, pollards, germs, husks, culms, dust, or other similar by-products of grain. The articles classed as grain include wheat, barley, oats, rye, buckwheat, pease and beans (not fresh), lentils, and rough rice. The milled products, which pay 5d. (10 cents) per cwt., include flour and meal containing over 50 per cent of starch of any of the dutiable grains. Arrowroot, starch, cassava powder, tapioca, potato flour, sago, malt, pearled barley, whole and cleaned rice also pay a customs duty of 5d. (10 cents). Broken rice has a 4d. (8 cents) duty, and polished rice up to the present pays only 5d. (10 cents), which seems too small when exporters are claiming 5.5d. (11 cents) drawbacks. The clever smuggler under the present rules may import good polished rice with a sprinkling of husks at 3d. (6 cents), remove the latter, and export the polished rice on drawback at 5.5d. (11 cents).

In deference to that unpopular political cry of the "bread tax," one may search in vain in the finance act and customs regulations for the words "bread" or "biscuits." These articles are classed as "preparations of starch" at 5d. (10 cents) per cwt. At first, it was proposed to tax various other grains, such as gram or chick-pease, dholl or pigeon pease, dari or durrah, millet, locust beans, linseed, cotton seed, tares, vetches, etc. After many days, it is now settled that such imports are not dutiable.

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*ADVANCE SHEETS No. 1474 (October 21, 1902); CONSULAR REPORTS No. 267 (December, 1902).

If the husks of wheat, barley, oats, and rye pay duty as offals at 1.5d. (3 cents), it is difficult to see why rice shudes and buckwheat husks are admitted free of duty. There are many other anomalies in rating grains for duty. For instances, French pease in bottle, preserved in salt, are free, although ready for use, while canned pork and beans pay 3d. (6 cents) and canned green corn or maize is taxed at 2.5d. (5 cents), although it is not a milled product of maize. The suburban flower grower, also, must pay a tax on sweet pease and other garden seeds.

Taken in detail, the far-reaching ramifications of the corn duties may be seen more clearly when dealing with actual importations:

Arrowroot pays duty at 5d. (10 cents) per cwt.

Baby food is liable for flour, cocoa, and sugar, other than milk sugar.

Baking powder is taxed with the percentage of starch at 5d. (10 cents).

Barley duty is 3d. (6 cents).

Beans, broad, pay 3d. (6 cents) duty when not fresh, whether kidney or French or otherwise

Beans and pork, canned, liable on proportion of beans in dry state.

Bean meal is taxed at 5d. (10 cents), except when rated as offals.

Bean husks liable to 1.5d. (3 cents) duty as offals.

Biscuits, in addition to sugar duty, pay on the proportion of flour at 5d. (10 cents). Currants and raisins are "extras."

Biscuit flour, or milk powder, has so far escaped taxation as milk sugar, if no cane sugar is added.

Bread is an objectionable word, but such imports pay as preparations of starch at 5d. (10 cents).

Brewers' grains, when imported, pay as cattle food at 6d. (12 cents) or 1s. (24 cents), according to amount of molasses present.

Bran is liable as offals at 1.5d (3 cents) when the starch does not exceed 50 per cent.

Cattle food, as above, 6d. (12 cents) or 1s. (24 cents) per cwt.

Cereal foods pay 5d. (10 cents) or 2.5d. (5 cents); if from maize, coffee, or chicory extra.

Charcoal tablets pay on sugar or malt in proportion.

Chestnut flour contains some starch and sugar, probably natural to nuts.

Cereal coffee, largely used in America, when imported, pays 5d. (10 cents) per cwt.

Coffee-husk meal appears to escape taxation at present—unlike cocoa husks.

Cocle seeds are free from duty.

Cocoa-husk meal pays a cocoa tax of 2s. (49 cents) per cwt., although it is worked up with cheap cocoa preparations.

Corn, blighted, or ergot, is imported free as a drug at present, but will probably pay as corn later.

Corn, canned, is now taxed 2.5d. (5 cents) per cwt. on dry corn as a "milled" product, instead of 1.5d. (3 cents) as maize.

Corn flour is dutiable at 5d. (10 cents) if from wheat, but usually at 2.5d (5 cents) as maize product where husk is present.

Cotton-seed cake is delivered free of duty as imported, not being mixed with sugar or dutiable grains.

Cotton-seed meal is also free as above.

Dextrin pays at present as starch at 5d. (10 cents), but should pay at least 7.5d. (15 cents), considering waste in making.

Distillery refuse, like brewers' grains and cattle food, at 6d. (12 cents) or 1s. (24 cents) per cwt.

Dholl, or pigeon pea, is now imported free of duty.

Ergot of rye is imported free, as drugs.

Farina is taxed at 5d. (10 cents) per cwt.

Fish food contains some starch, which is taxed in proportion.

Flour pays duty at 5d. (10 cents) per cwt. if other than maize flour, which pays 2.5d. (5 cents) per cwt.

Fodder, cattle, is taxed at 6d. (12 cents) or 1s. (24 cents), according to amount of molasses and dutiable corn in the fodder.

Fowl mixture, which is composed of tares, refuse wheat, or barley, pays on percentage of wheat or dutiable corn in mixture.

Fly papers, when containing starch or sugar, are taxed accordingly.

Gelatin, as in printers' roller composition, usually contains 20 per cent of sugar.

Gluten feed, maize, an offal for cattle, pays 1.5d. (3 cents) tax.

Glue from bones is admitted free.

Glue powder sometimes contains starch and pays on proportion at 5d. (10 cents).

Glue for sizing is partly dextrin and is charged as a starch preparation.

Gram, or pulse, or chick-pea, is not charged as pease, but is admitted free.

Green corn, usually canned, is taxed at 2.5d. (5 cents) as maize meal.

Groats are taxed as milled oats, at 5d. (16 cents) per cwt.

Hemp cake is admitted free when neither sugar nor dutiable corn is present.

Horse gram is free.

Infants' food pays on amount of sugar (other than milk sugar), cocoa, and flour in its composition.

Kang gram is free.

Khessary dholl is free.

Kulthi horse gram is free.

Lentils pay 3d. (6 cents) duty, but split lentils and split pease pay 5d. (10 cents) per cwt.

Linseed cake, as imported, is usually free.

Locust beans, after much parliamentary wrangling, are now free goods.

Maize, as a concession to Ireland, pays 1.5d. (3 cents) per cwt.

Maize meal is taxed at half the duty of other meals, viz, 2.5d. (5 cents); but maize starch and potato starch pay 5d. (10 cents).

Maize flakes, like maize meal, is charged 2.5d. (5 cents) per cwt.

Malt, when imported, pays 5d. (10 cents); but malt extract is charged 7.5d. (15 cents) per cwt., in respect to amount of malted corn used in preparing it.

Malt dust is rated as offals at 1.5d. (3 cents), and so are malt culms.

Malts foods generally pay 7.5d. (15 cents) per cwt., or one and a half times the malt duty.

Malt extract must pay on the actual quantity of spirit present and 0.5d. (1 cent) per bulk gallon for the malt duty.

Maltine, used in preparing malt extract, is largely imported, and pays on spirit and malt.

Maltose is taxed at 7.5d. (15 cents) per cwt., like malt extract.

Malted milk, a considerable import, pays a duty of 5d. (10 cents) per cwt.

Meals of dutiable grains pay 5d. (10 cents) when not offals, but maize meal pays only 2.5d. (5 cents).

Millet seed is now imported free.

Middlings, under the present imperfect method of estimating the percentage of starch, are frequently taxed only as offals, at 1.5d. (3 cents); but nearly all middlings should be charged as meals, at 5d. (10 cents).

Molassine is a cattle food containing molasses, and pays 1s. duty.

Mustard flour usually contains 20 per cent starch for corn duty. The exports are considerable.

Nuts, ground, when containing no added sugar or starch, are free, and so are nut husks.

Nut meal, for cattle, when containing no dutiable starch, is delivered free of duty. The microscope is used to determine whether starch or husk is dutiable.

Offals, for feeding cattle, when under 50 per cent of starch by customs test, pay 1.5d. (3 cents) per cwt. The offals imported are wheat, barley, rye, rice, maize, oats, and bean.

Oats, 3d. (6 cents) duty per cwt.

Oatmeal is taxed 5d. (10 cents), and so are rolled oats and oat groats.

Oil cake is usually imported free from added starch or sugar.

Paper imported has been found to contain starch and glucose. This arises from the fact that dextrin is used in "finishing" the paper. The starch and the dextrin, on treating with acid, are converted into glucose. Pure cellulose, or cotton wool, contains no starch, but yields about 5 per cent of glucose when boiled with acid for some hours. The customs will not collect much revenue from paper.

Paper finish, or dextrin, is taxed as a preparation of starch at 5d. (10 cents) per cwt. on the percentage in the article.

Pease, dried, pay 3d. (6 cents) duty.

Pease, bottled, preserved in salt, are now imported free as fresh. The trade from France is large.

Pease, chick, are declared to be free goods.

Pollards pay duty as offals at 1.5d. (3 cents) per cwt. when containing less than 50 per cent of starch.

Potato flour, when in a finely divided state, pays duty as starch at 5d. (10 cents). There is no duty on potatoes.

Poultry food is largely imported, being a mixture of tares or vetches with dutiable corn, like oats. The percentage of latter pays 3d. (6 cents) per cwt.

Puddine, maize flour, is taxed 2.5d. (5 cents). When cocoa and sugar are present, the proportion of each duty is levied.

Rice, whole and cleaned, pays 5d. (10 cents) per cwt.; when whole, not more than 50 per cent, 4d. (8 cents); and when not more than 10 per cent, 3d. (6 cents); uncleaned rice, 3d. (6 cents). Some importers put some of latter in to save extra 2d. (4 cents).

Rice meal is usually imported as offals for cattle at 1.5d. (3 cents), but no broken rice must be fixed with the meal.

Rice shudes are imported free by some strange ruling of customs.

Rye pays 3d. (6 cents) per cwt.

Remoulage, bean offals, rated at 1.5d. (3 cents) duty.

Seeds, like sweet pea, are taxed 3d. (6 cents). The Government botanist at Kew Gardens generally determines whether imported seeds are dutiable "grain" or otherwise.

Screenings, broken wheat and tares, pay on percentage of wheat at 3d. (6 cents).

Size or dextrin pays duty as a preparation of starch at 5d. (10 cents) on percentage used in manufacture.

Ships' sweepings and warehouse sweepings do not escape the customs tax on grain.

Starch is liable to the 5d. (10 cents) duty. It has been urged by importers that starch from maize should be taxed at 2.5d. (5 cents), like the flour or milled products of maize. This plea has not been successful so far, all starches from dutiable grains being charged at 5d. (10 cents), when no husk is shown by microscope.

Starch from potatoes is also a dutiable article, although potatoes are free goods on importation.

Tares are now free.

Urhur pease are free.

Vetches are free.

Wheat pays 3d. (6 cents) per cwt.

Wheat-germ meal is imported to some extent for use in making brown bread and is charged the meal duty of 5d. (10 cents), because it is not used as an offal for feeding cattle.

Wheat middlings should pay 5d. (10 cents) duty, but under the defective method of estimating starch by "malt method" by customs, are usually cleared at 1.5d. (3 cents) as offals.

Wheat screenings pay at 3d. (6 cents) on percentage of broken wheat present.

Wheat offals, when under 50 per cent starch, are taxed at 1.5d. (3 cents).

Yeast at present escapes taxation. The Dutch yeast, imported in large quantities, frequently contains starch and spirit. The yeast makers in this country have a decided grievance against allowing foreign yeast to be imported free.

Before concluding this summary of the curious and vexatious operation of the "corn" tax, it is necessary to make a serious complaint against the customs method of estimating the percentage of starch in offals and middlings imported. One of the arguments used by the chancellor of the exchequer when introducing the grain duties was that it would revive the milling industry of the United Kingdom. Is he aware that the board of customs are absolutely destroying any chance of such revival in milling, by allowing the importers to deduct 5 per cent from the official test by "acid method," in order to clear imported "middlings" and flour as offals containing less than 50 per cent of starch? Even when the flour gives 60 per cent of starch and the 5 per cent off does not bring it under 50 per cent, the customs test the sample by what is called the "diastase" or "malt-ferment" method, which frequently shows a result 15 per cent too low. Some genius has informed the board of customs that meal contains 5 per cent of "soluble carbohydrates," and this blessed word has worked very effectually for the foreign millers. It simply means that the customs first wash out all the soluble starches and then analyze the insoluble residue for official starch. In the process of washing out, the customs analyst loses on the filter papers another 5 per cent of dextrin and gummy starch.

Hence, the customs board are now daily delivering 5d. (10 cents) flour and middlings from America as offals at 1.5d. (3 cents) per cwt. by allowing 10 per cent off the actual quantity of starch present—that is, by this absurd method of estimating starch, the revenue loses 3.5d. (7 cents) per cwt. on all rough meals, and the astute foreign millers have mystified the board of customs. It is to be hoped that the British millers, when made aware of this action of the customs, will take steps to checkmate the agents of their Yankee cousins on the corn exchange and at the custom-house.

GENERAL REVIEW OF ANGLO-AMERICAN TRADE.

The following extracts are from the annual report of Consul James Boyle, of Liverpool, to appear in full in Commercial Relations, 1902:

British foreign and colonial trade for the nine months ended September 30, 1902, shows an improvement over the corresponding period of 1901, and the improvement in September was particularly marked. This is true both of imports and exports, and yet, judging by the labor returns, the general trade of the country has not been quite as good this year as last—that is, the home trade has somewhat fallen off. The labor returns show a tendency to a decrease in the number of men employed, and also in wages. The probable explanation is that the productive capacity of the country has about caught up with the extra demand created by the boom which started two or three years ago in municipal enterprises, by the increase of shipbuilding, etc. It is worthy of note that within the last year there has developed a distinct change of sentiment with regard to foreign competition, and more especially with regard to American competition. During the past two years, there has been a persistent effort on the part of publicists and the newspapers to bring about reforms in the methods of business generally, and particularly in methods of manufacture and the relations of workingmen thereto, with a view to more successfully meeting foreign competition—and foreign competition over here means, in most cases, American competition. Beyond a doubt, the warnings that have been sounded and the educational process that has been going on have had their effect to some extent, and American manufacturers must make up their minds that this market will be more difficult to exploit than it has been in the past; they should also realize that England is more able now to meet competition in neutral markets than she has been in recent years.

TRADE OF GREAT BRITAIN AND SHARE OF THE UNITED STATES.

The statistics for the year 1901 are very satisfactory from an American standpoint. Probably, few people realize the vastness of the foreign and colonial trade of the United Kingdom—the largest by far of any country in the world. The total for 1901, both in imports and exports, was $4,349,272,330, the imports being $2,609,950,990 and the exports $1,739,321,340. Of this trade, over one-fourth passed through the port of Liverpool, going and coming. The most remarkable feature of British foreign trade is the large proportion of it which is done with the United States, this Anglo-American trade being larger than that between any other two countries in the world. During 1901, the value of the imports from the United States was $705,077,325, being an increase of $11,131,020 over 1900. The value of the imports from the United States into the United Kingdom in 1901 was more than two and one-half times the value of the imports from the next largest seller, which is France; and the United States sent goods here to the value of $177,208,795 in excess of the total value of those sent by all of Great Britain's vast system of colonies, possessions, and protectorates. In view of the popular outcry in this country against goods "made in Germany," it is a very interesting fact that Germany is the only important country (commercially speaking) which receives more goods from Great Britain than Great Britain receives from her. Even little Holland exports more goods to the British Isles than Germany does. The British exports to the United States in 1901 footed up $188,255,750, an increase over 1900 of $1,535,975. It is anticipated that the exports to the United States this year will be larger than those of last year. Of this great trade between the United States and the British Isles, Liverpool receives more goods than any other port, not excepting London, it being the leading entrepôt of the imported products of the American plantation, farm, ranch, and dairy. It is estimated that 80 per cent of the breadstuffs consumed in Great Britain come from abroad, and the United States has the premier place in furnishing these supplies. On account of Liverpool's preeminence as a port, it has become the largest market for grain in the British Empire, and it is claimed that it is now the second largest milling center in the world.

CANADIAN COMPETITION.

In connection with the importation of farm and dairy products, the British Blue Book for 1901 demonstrates that the United States has more than held its own against the much-talked-of Canadian competition. It should be remembered that Canada is the greatest competitor the United States has in supplying the British market with the products of the forest and farm. The reports from this consulate have several times drawn attention to the extraordinary enterprise and energy of the Canadian Government with the view of capturing the British market, or at least (for the present) capturing a much bigger slice of it than Canada has had, with possibilities for the future that have no limit in Canadian ambition. In view of the efforts put forth, it is surprising to learn that the imports of Canadian products actually fell off last year. In 1901, their value was the smallest in four years. The total was $99,272,925, a decrease of $9,947,180, as compared with 1900. The value of the British exports to Canada in 1901 was $46,252,630, being an increase of $958,685 over 1900. This was probably the greatest value of exports to Canada the United Kingdom has ever reached, and yet the gain does not seem very substantial, considering the preferential tariff this country enjoys in Canada. Let there be no mistake. Canada is very much in earnest in the competitive struggle now going on, and it would be very unwise to dismiss the matter of Canadian competition as a bugaboo. During the past year, greater efforts than ever, both in Canada and in Great Britain, have been made to make this competition stronger. The latest scheme is to sell Canadian products to the British consumer without the intervention of "middlemen." Leaving governmental and political considerations altogether out of the question, and looking exclusively at the commercial phase of the recent manifestations of "imperialism," Canada has never been so much in evidence in this country as during the current year. The participation of the colonies in the South African war and the demonstrations in connection with the coronation of King Edward developed a wave of what has become known as "imperial sentiment." While it is likely that the lapse of time may chill this popular enthusiasm, yet there undoubtedly has been left a residuum which is being earnestly worked upon by those who belong to the pan-Britannic school. The presence of the colonial premiers has given an impetus to this sentiment, and Canada more than any other colony has been to the front in the "boom," in which all the colonies have more or less participated. For months, the Canadian arch in London proclaimed that Canada was the "granary of the Empire," and leading men of Canada have traveled all over the British Islands prophesying that in course of time Great Britain would get its food products principally from Canada and the other colonies, instead of from the United States.

BRITISH COLONIAL TRADE.

The programme of some of the more pronounced imperialists may be extravagant—this programme being the production within the Empire of nearly everything that the Empire consumes. This even includes cotton. Reference has already been made in this series of reports to an attempt to grow cotton on the west coast of Africa. Within the last few weeks, an association of responsible business men, largely of Liverpool and Manchester, has been formed with the avowed object of producing enough cotton in India, British West Africa, and Egypt (which in this connection is considered British) to supply the whole wants of the Empire. The Federation of Master Cotton Spinners' Associations has approved the scheme, and the British Colonial Office and the various colonial governors have undertaken to assist. It is expected that next year 1,000 bales of West African cotton will be placed on this market, simply to show what can be done. It is significant that during the last five years there has been a steady growth of British exports to the colonies, rising from $434,821,845 in 1897 to $565,591,820 in 1901, a gain of $130,769,975. While British exports to foreign countries were $88,018,980 less in 1901 than in 1900, the exports to the colonies show an increase of $55,471,550. There is every reason to believe that during the current year this growth of colonial trade has extended. Beyond a doubt there has been a development of sentiment both in the colonies and in the mother country in favor of closer commercial relations. An evidence of this was given only a few days ago by the British Government in issuing an order that all preserved mutton for the use of the army should be the product of British colonies. This is a very serious matter for Argentina, and is in the direct favor of New Zealand and Australia. Canada is certainly not discouraged by her failure so far to get an extra big slice of the British trade, and there are many enterprises under way which will undoubtedly make Canadian competition keener in the future. It is claimed that as a matter of fact Canadian shipments to Great Britain are much larger than the figures show, for the reason that a large proportion comes by way of the United States in the winter season; and the British Blue Book draws attention to this condition of affairs. But, on the other hand, many shipments from the United States are sent through by way of Quebec and Montreal in the summer season. Although there are many misgivings among Liverpool shipping people as to the success of the enterprise, it is now accepted that in a short time there will be a fast line of steamships between this port and Canada, both in winter and summer. Owners of ships sailing to Canada complain very much of the heavy insurance they have to meet, but the underwriters plead in extenuation the extra danger of the St. Lawrence route. It is said that vast sums of money are being spent by the Canadian Government to render this route less dangerous. But so far the United States more than maintains its position as the great provider of food products for the British people.

WHEAT IMPORTS.

The ever-increasing value of the food supplies imported into the United Kingdom is really startling and is a certain indication of the continually growing abandonment of the land of this country for food production. There has been an almost continuous shrinkage in the area of land in the United Kingdom under grain cultivation. In 1900, the acreage was 8,707,602; in 1901, it was 8,476,876—a decrease of 230,726 acres. Permanent pasture land increased by over 1,000,000 acres. Hay is the most profitable crop in England. Within the last few days the British Government has agreed to render financial assistance to experiments that are being made with a view of "strengthening" British wheat. It is said that in recent years the wheat grown in this country is not nearly so "strong" or nutritious as that grown in the United States, Canada, and some continental countries. This country is yearly becoming more and more dependent upon America for its food supplies. In 1901, the total value of the wheat imported into the British Isles was $115,406,860. Of this, the United States supplied wheat to the value of $67,377,655—an increase of $11,211,315 over 1900. Argentina comes next, with $13,351,775—a tremendous drop from 1900, when it was $30,440,615. In spite of all her advertising, Canada sent in 1901 wheat to the value of only $11,080,245, being an increase of but $45,855 over 1900. Australia and New Zealand are coming to the fore, but within the last few years there has been a great drop in the Russian supply. The total value of imported wheat meal and flour in 1901 was $51,707,595, of which the United States sent $43,491,245—an increase of $1,659,965 over 1900 and of $8,045,755 over 1897. Canada comes next to the United States, her contribution in 1901 being $3,143,055, an increase of $289,655 over 1900, but a decrease of $2,628,175 as compared with 1899 and of $873,890 as compared with 1897.

MEAT IMPORTS.

The English people are the greatest consumers of bacon in the world. The vast majority of the people eat bacon for breakfast at least six mornings out of every seven throughout the year, so it can easily be understood that the total consumption is enormous. As the British people are ceasing to grow wheat, so they are stopping raising hogs and cattle, and have to depend more and more upon outside sources for supplies. In 1901, the value of the bacon imported was $67,950,880, an increase of $23,611,650 in five years. The United States share was $46,279,255, an increase of $8,819,540 in a year, and of $28,316,080 as compared with 1897. Canada has been making a big bid for this trade. In 1901, she sent over bacon to the value of $4,607,545. Now, while this is a gain of $3,156,130 as compared with 1897, it is an actual decrease, amounting to $769,680, as compared with 1900. The excellence of Canadian bacon can not be disputed. The hogs are fed on pease mostly, and the bacon is well cured, but it is dearer than bacon from the United States, and the American product has within recent years greatly improved in curing and appearance. The English people like mild-cured bacon, and it must be cut in a certain way, and American packers have now become masters in the art of meeting the wishes of their customers over here.

The figures $43,534,195 represent the value of the total importations of fresh beef last year. The value of the contributions of the United States was $33,807,935. Although Argentina can not send live cattle to this country, by reason of the prohibition on account of foot-and-mouth disease, yet she is steadily climbing up in supplying chilled beef to this market. In 1897, the value of the importations from Argentina was only $640,890, while in 1901 the value was $6,091,230. Canada's proportion was insignificant.

The total value of the importation of hams in 1901 was $22,641,940. Of this, the share of the United States was $21,049,080, being an increase of $2,235,510 over 1900. Canada's shipments showed an actual decrease compared with 1900, amounting to $713,795. Curiously, Holland supplies more fresh pork than does any other country, the United States being a good second.

IMPORTS OF SHOES.

During the past year, one of the most manifest phases of the "American invasion" has been the increasing trade in boots and shoes made in the United States. There has, indeed, been a great increase in the sale of continental foot wear, as well as of American, during the past five years. In 1901, the total importations were $4,694,545, an increase of $1,221,055 in a year and of nearly 100 per cent in five years. The following figures show how the trade in American boots and shoes has grown in the United Kingdom: In 1897, the value of importations was $405,675; in 1898, $369,450; in 1899, $782,330; in 1900, $1,006,325; and in 1901, $2,028,715. In Liverpool alone there are four shops that sell American boots and shoes exclusively, and half a dozen others that make a specialty of them. The importations for 1902 will probably show an increase over 1901, but at a meeting of English manufacturers a few days ago it was announced that within a recent period the importations had fallen off.

IMPORTS OF MACHINERY.

The value of the total importations of machinery and millwork and parts thereof was $19,815,145, of which the importations from the United States footed up $12,456,560—a substantial increase over 1900. It should be remembered that much of this trade is owing to the movement for the "Americanization" of English factories, with the specific object of meeting American competition both at home and abroad. The total importations of copper in bars, blocks, and ingots were $23,652,900. From the United States the importations were $6,802,970. There was a decrease in the shipments from the United States of pig iron, iron bars, angles, and rods. The importations from Belgium in these lines have greatly increased. There was a marked decrease in importations from the United States of unmanufactured iron and steel. Rather curiously, Holland has forged to the front in these lines, increasing her exportations to Great Britain tenfold in a year. Belgium made a gain in iron and steel girders, joists, etc. The United States led in supplying steel rails, the total being $2,064,145, the United States sending $938,700.

NOTTINGHAM LACE TRADE.

The lace trade of this district was very satisfactory during the autumn, and the opening of winter is accompanied by indications of a continuing brisk business. Fashions are greatly in favor of lace, particularly cotton laces, insertions, and galloons for the home trade, the nearer continental markets, and for certain export branches. The demand includes a larger proportion than usual of the higher qualities of goods. There was probably never a time when the varieties were so extensive and the qualities so rich. There is a large output of lace curtains and kindred fabrics, but the demand scarcely equals the great supply. New designs are being prepared by manufacturers of certain lines, especially aprons, children's frocks, blouses, and collarettes, which form an increasingly important branch of the local trade. The long-depressed embroidery branch does not improve, and the demand is insufficient to keep the machinery well employed or to encourage the production of novelties. The silk-lace branches languish, and the output has of late been considerably reduced. Fashions are unfavorable to them, and, besides, French manufacturers are taking the bulk of the trade. The large business in fancy articles and the further anticipated expansion induce the preparation of many novelties, which are now in progress.

On the whole, production is now fairly abreast with the demand; prices show no quotable change. Extensive preparations are being made for next season, which is evidence of a confident feeling on the part of manufacturers.

FRANK W. MAHIN,
Consul.

NOTTINGHAM, *December 4, 1902.*

ENGLISH DEVICE TO PREVENT THE BULGING OF BOBBINS.

The local lace manufacturers have always been troubled by the bulging of bobbins in winding, and many efforts have been made to devise a remedy. The best plan at present followed, though not wholly satisfactory, is to screw the bobbin down in a press after the moisture in the cotton has been evaporated.

A local inventor has just patented a device which promises to solve the vexed problem. It obviates the waste of time in compressing the bobbins after they are filled by performing the process while they are being wound. Briefly, the invention consists of pressing the bobbins tightly together while they are on the spindle and being filled. The pressure is applied by two uprights (one at each end of the spindle), controlled by stiff, spiral springs. The properly wound bobbins can not, of course, be further compressed; but those which have a tendency to bulge are squeezed flat by the pressure exerted by the springs, provided the inventor's idea is successfully carried out.

Textile firms in the United States may have had similar trouble with bobbins, in which case this invention will have interest for them.

FRANK W. MAHIN,
Consul.

NOTTINGHAM, *October 28, 1902.*

NOTES.

Expenses of the Siberian Railroad.—Under date of October 9, 1902, Commercial Agent R. T. Greener, of Vladivostock, sends the following extract from the Russian Economical Review:

> When one reflects that the construction of this road has cost thus far 780,000,000 rubles ($401,700,000), it is not reasonable to expect that its exploitation would be immediately profitable. Allowing only 4½ per cent interest on the capital invested and for the sinking fund, 34,750,000 rubles ($17,896,250) would be needed. In 1899, the expenses averaged 5,000 rubles ($2,575) a verst (0.663 mile). The Chinese Eastern Railroad will cost more, and as faster train service becomes necessary the average cost per verst will be 6,000 rubles ($3,090). Therefore, for the entire length of the road—7,762 versts (5,146 miles)—the cost must approach 47,000,000 rubles ($24,205,000) per year. To cover this expense of 80,000,000 rubles ($41,200,000) annually, the traffic should reach 400,000 metric tons of freight each year. No such amount of traffic may be looked for at once. To cover the expense of exploitation only, 166,000 metric tons would be required. In 1898, the traffic amounted to 37,000 metric tons; in 1899, to 40,000 metric tons; in 1900, to 45,000 metric tons. The increase would have been greater but for the unfavorable conditions prevailing in Siberia—Chinese riots, bad harvests for two consecutive years, etc. In any event, the increase of traffic must be greatly augmented to pay expenses. But the instances of quick advance in growth of traffic over the Canadian Pacific and upon our railroads in southern Russia give us the right to assume that our Siberian Railroad will not lack for freight. The stream of immigration now flowing into Siberia and the numerous natural resources of that region, not yet developed, prevent all pessimistic forebodings as to the future of this great artery of commerce.

American Trade in India.—Consul W. T. Fee transmits from Bombay, November 20, 1902, a clipping from the Times of India, which reads, in part:

THE AMERICAN INVASION.

> Already there are signs, very distinct if at present small, that the Americans have commenced their invasion of the commerce of this country in earnest. To every department of commerce America is contributing her quota, and the local bazaar exhibits unmistakable signs that her intention is not merely a casual experiment. She is not merely feeling her way, but has already laid down the foundation of a thriving and prosperous business. American agents are fully alive to the possibilities of the country, and, as the Indian Textile Journal points out in its current issue, the probability that American capitalists will look to India as a future field for industrial speculation is not far remote. Whatever else may be said of American competition, it is always fair and always legitimate. It does not result in a market flooded with goods of the cheap and nasty order; it does not arise out of methods risky and speculative, so far as the manufacturers themselves are concerned. American success is due to pluck, enterprise, and inventiveness, helped by skill in manufacture and worth in her productions. There was a time when the native

dealer scorned to take advantage of American prices, simply because he preferred to stand by the merits of the British-made articles, quite apart from the question of cost. That day has gone by. The American has within a few years secured 5 per cent of Indian trade and the Indian bazaar, so far as the steel industry is concerned. Were it not for the fact that the British manufacturer is so helped by official influence, the slump in the direction of America would be rapid. It is not to be expected, when the articles are placed side by side, both equally good but one cheaper than the other, that the purchaser will not choose that which costs him less money. Improvement in system at home will simply mean Americanizing. Surely, as the Textile Journal hints, British manufacturers are too astute to lose trade and lose money merely for the sake of tradition and prejudice.

Quinine Auction at Batavia.—Consul B. S. Rairden sends the following from Batavia, November 3, 1902:

Since August 5, no quinine sales have been made by public auction. The sale is now made by public tenders given to the firm of Tiedeman & Van Kerchem, agents for the Bandong Quinine Factory.

On October 30, some 6,690.6 kilograms of quinine were sold by tenders, and the average price was 16.50 florins ($6.63) per kilogram, equal to the unit price of 0.06 florin (2.4 cents) for the bark at the Amsterdam market.

The sales effected, amounting to 6,690.6 kilograms (14,661.6 pounds), were the following:

Sales.		Price per kilogram.*
Kilograms.	*Pounds.*	
68.04	150	$8.14
45.36	100	8.04
68.04	150	7.67
68.04	150	7.04
113.40	250	6.71
703.80	1,561.6	6.63
861.84	1,900	6.10
3,175.20	7,000	6.04
68.04	150	5.91
839.16	1,850	5.89
589.68	1,300	5.53

* 1 kilogram=2.2046 pounds.

Agricultural Industry in Japan.—Under date of November 8, 1902, Consul S. S. Lyon sends from Kobé the following newspaper article:

The important question of fostering the agricultural resources in Japan has been much discussed recently by a section of the public. It is stated that according to statistics the total debt of the farming class at present amounts to about 600,000,000 yen ($298,800,000), two-thirds of which is the result of the easier life led by the generality of farmers, the better food, clothing, and housing. This capital is unproductively employed, while the remaining 200,000,000 yen ($99,600,000) goes to the fund for the improvement of the agricultural industry. The interest paid by farmers is abnormally high, ranging from 15 to 30 per cent per annum, and there is little prospect of repayment, as the profits are very small. The farmers toil hard throughout the year, yet their profit is not more than 5 per cent per annum, after deducting the national and local taxes. It is hopeless for a business which pays only 5 per cent to be carried on with capital which pays an interest of 20 per cent, and, for this reason, the improvement of farms is entirely out of the question. The small tenant farmers are rapidly forsaking their holdings for other businesses, and tenant farmers in Hiroshima and Yamaguchi prefectures, where the agricultural land is largely owned by a few rich farmers, are steadily leaving for abroad. In consequence, the agricultural industry in Japan is declining rather than progressing. Some years ago, the Government established an agricultural and industrial bank in each prefecture, with a view to improving matters. Money was advanced cheaply, and the rate of interest fixed at 8 per cent, but when the fees for the survey of property and the registration of hypothecation were paid, the rate of interest rose to 11 and 12 per cent. The only measure now open for the relief of farmers is for the banks to reduce the interest.

New Japanese Steamers.—Consul S. S. Lyon sends from Kobé, November 25, 1902, a newspaper clipping to the effect that the Nippon Yusen Kaisha is having six steamers built—one of 6,000 tons, one of 5,000 tons, three of 2,000 tons each, and one of 1,000 tons. The first will be put on the European line, the next on the Australian line, and the others on the North China line and in the Hokkaido coasting trade. The Nippon Yusen Kaisha, it is added, is compelled to continue building on account of the terms of the subsidy, which provides that no vessel older than fifteen years is to be employed, or, if employed, is entitled to participate in the subsidy.

Oil Motors in India.—Under date of November 21, 1902, Consul W. T. Fee, of Bombay, sends an article from the Indian Textile Journal, of that city, from which the following extracts are taken:

> There has been much talk in India during the last year or two of the oil motor, but apparently the question is a difficult one. In a city like Bombay, badly served as it is with electric power, an inexpensive motor, giving just sufficient power for installation of electric light, would be invaluable. In a very short time, there will be received in Bombay a consignment of small kerosene-oil motors. The special advantage of the motor is that it is free from complicated parts and no boiler is required. A Bombay client of an American firm has ordered a 21-foot kerosene-oil launch for the harbor, and it is stated that this little vessel will put to shame most of the clumsy-looking craft which one sees in the harbor. This launch is fitted with one of the above motors, which have the additional advantage of being convertible into marine engines with very little trouble.

Bounties for Siberian Butter.—Consul S. Smith, of Moscow, November 27, 1902, writes:

The Department of Agriculture has allotted 78,000 rubles ($39,000) to increase the export of Siberian butter. This amount will be distributed as follows:

1. To increase the number of instructors for creameries in western Siberia.
2. To maintain creamery schools in Kurgan and Omsk provinces.
3. To maintain educational courses in creamery economy.
4. To organize creameries in western Siberia.
5. To maintain one central and five examining laboratories.
6. Traveling expenses of instructors and foremen.

Ownership of Real Estate in Russia.—Consul S. Smith reports from Moscow, November 27, 1902:

The Department of Agriculture has lately published statistics showing the area of land owned by private individuals in the forty-six provinces of European Russia, aggregating 267,124,836 acres. The proprietors of this area are classified as shown below:

Description.	Area.	
	Dessiatines.	*Acres.*
Nobility	65,000,000	181,606,519
Merchants	13,000,000	36,321,303
Peasants	12,577,867	35,141,886
Burgesses or commoners	3,000,000	8,381,839
Different classes	2,030,565	5,673,289
Total	95,608,432	267,124,836

Commercial Navigation Department in Russia.—Consul-General W. R. Holloway reports from St. Petersburg, November 29, 1902, that the Messenger of the Government has just published an ukaz of the Emperor, dated November 7 (20), creating a new office, under the title of "The Central Administration of Navigation and Commercial Ports." This will have control of all matters connected with the navigation of rivers and commercial navigation in general, as well as control of commercial ports heretofore under the Minister of Finance. It will also control all seaports heretofore under the management of the Minister of Ways and Communications. The Grand Duke Alexander Mikhailovitch is appointed chief manager.

Fire Exhibition in London.—Consul-General H. Clay Evans sends from London, November 29, 1902, a revised circular in regard to the international fire exhibition to be held at Earl's Court, London, in 1903. A description of the plans for this exhibition was printed in ADVANCE SHEETS No. 1439 (September 9, 1902).* According to the revised circular, there are two additional groups in the schedule of exhibits:

GROUP XI.—Combustibles and explosives:
  Class 1.—Fuels and oils: Coals, timber, briquettes, oils; explosives, fireworks.
  Class 2.—Storage: Workshops for and storage of fuels and oils; carriage of oils and fuels; gunpowder factories and stores; petrol tanks, holders, and safeguards.
  Class 3.—Lamps and stoves: Lamps, safety lamps, torches, lighters; stoves, ovens, and ranges.
GROUP XII.—Furniture, fabrics, and general exhibits pertaining to fire protection.

For further particulars, those interested should apply to R. Claude Garnett, secretary of the London Exhibition, Limited, Earl's Court, London, SW.

Demand for American Superphosphates.—The following has been received from Consul G. H. Jackson, of La Rochelle, under date of November 19, 1902:

The demand for American superphosphates has greatly increased; there have been received at this office letters from several countries, including Germany and Italy, which show that there is an opening here for American enterprise on an extensive scale. I understand from three letters that more than 50,000 tons of superphosphates could be placed at once. In some instances, it would be better to ship the manufactured article direct from the United States. In other instances, it might be well for American capital to establish factories in the countries where phosphates are required, and where the local works have not sufficient capacity to supply the market. Thousands of tons of Belgian fertilizers of this nature are now received at La Rochelle.

American Yacht Wanted in France.—Consul G. H. Jackson reports from La Rochelle, December 5, 1902:

A French gentleman has asked me to put him in communication with somebody who has an American-built auxiliary wooden yacht to sell. It should have a good beam and be a good sea boat, comfortably installed for cruising; measurement, from 150 to 200 tons. Other conditions being equal, vessels already in European waters would have the preference; the boat must be American built. Descriptions, prices, and all other information should be sent to this office, addressed to the United States consul.

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* CONSULAR REPORTS No. 266 (November, 1902).

Design for Monument to the Postal Union at Berne.—The Department has received from the Swiss legation, Washington, under date of November 25, 1902, notice of the competition for the design of the monument commemorative of the foundation of the Universal Postal Union, to be erected at Berne. The erection of this monument was decided by the Postal Congress held at Berne in July, 1900, and the Swiss High Federal Council was asked to assure its execution. An international jury of eleven members was appointed, who elaborated a programme in August, 1902, for this competition. Copies of the programme are filed in the Bureau of Foreign Commerce and will be sent to parties interested on application.

Heavier Rails for Prussian Railroads.—Under date of December 11, 1902, Consul-General Richard Guenther writes from Frankfort:

The management of the Prussian State railways commenced, a few years ago, to strengthen the roadbeds of the most-frequented lines and to replace the 72½-pound rails with those weighing 92.4 pounds. This, however, was done only where the old rails were worn out. It has now been determined to change the roadbeds and rails of the main lines at once, without reference to the condition; the number of ties will also be increased.

It is argued that while this change will require a good deal of capital, it will in the end be economical, as the heavier roadbeds are more easily kept in repair. The Minister of Finance has approved the plan, and the German industries and working people are greatly pleased over the prospects of increased opportunity for work, in these days of business depression.

Manufacture of Glass in Germany.—Consul J. F. Winter writes from Annaberg, December 6, 1902:

The manufacture of glass in Germany has become a thriving industry. The number of factories has reached 400 and they give employment to about 35,000 workmen. This is a good showing when it is considered that the production of glass is a comparatively new industry for the Empire. During the past thirty years, the imports of glass from Austria, Belgium, England, and Italy have not only been rapidly decreasing, but Germany now exports to those countries certain kinds of glass, such as bottles of every description. German manufacturers have of course not yet reached the stage where they can compete with Belgium in mirrors or with Venice in fancy-colored glass decorations and vases.

American Petroleum for Greece.—Consul F. W. Jackson sends the following from Patras, December 1, 1902:

In view of the opinion, current in this section, that the trade in petroleum which the United States has been enjoying for some time with this market is in jeopardy from Russia and Roumania, it is interesting and encouraging to note that the Greek Ministry of Finance has just placed a very heavy order with the same American firm that supplied the needs of the country last year. The order calls for 101,000 cases of refined petroleum, equivalent in gallons to 1,010,000 and in weight to 6,565,000 pounds. Seventy-five thousand cases of the above are intended for the warehouses of Volo and Piræus, and the remaining 26,000 cases for the Government light-houses, etc.

Coaling Station at the Seychelles.—Consul W. H. Hunt reports from Tamatave, November 19, 1902, that, in a letter to the French Minister of the Navy (published in the official journal of Madagascar and dependencies), the English company of Cory Bros. & Co., coal exporters from Cardiff, announce that they have established a coaling station at Mahé, the chief port of the Seychelles, and that coal can be taken in day and night by lighters and steam tugs; and, further, that ships putting in at Seychelles for purposes of coaling only are exempt from port dues. Water of good quality is also sold at from 3 to 4 rupees ($1.38 to $1.85) per ton.

Bricks in South Africa.—Under date of November 5, 1902, Consul-General W. R. Bigham writes from Cape Town:

Bricks are among the most expensive articles in this city. I am informed that they are sold for £4 1s. 2d. to £5 1s. 2d. ($22.50 to $27.50) per 1,000, and they are so poorly made that they have to be plastered with stucco to keep them from being destroyed by the action of the weather. I have seen some very rough bricks, shipped from England, which are harder than those manufactured here. I have not been able to find out the price, but they are more expensive than those locally made. It seems to me that if some good brick manufacturers close to our coast, in New Jersey or Maryland, would investigate this matter, they would find a large margin for profit. Bricks here are usually 2½ inches thick, 4½ inches wide, and 9 inches long, although I have seen some that are only 2 by 4½ by 9 inches. An American, who uses a great many bricks in building ice plants in this and other cities in this colony, told me he could sell

1,000,000 bricks per week here if he had such hard vitrified bricks as are made in the United States, for these would not have to be plastered. Building is very much retarded on account of the shortage of brick.

Light-Houses of Zanzibar.—The Department has received from the British embassy, Washington, a list of the light-houses in Zanzibar which have actually been erected and whose lights are now in working order, as follows: (1) Kegomache, northwest of Pemba Island; (2) Ras Nungwe, northeast of Zanzibar Island; (3) Mwana Mwana, northwest of Zanzibar Island; (4) Mangopwani, about 12 miles north of Zanzibar town; (5) Chumbe Island, about 7 miles south of Zanzibar town. There are also ready, or in course of preparation, a light-ship in English Pass, the northern approach to the harbor, and lights on the leading marks at Bet-el-ras north, and Kiungani south, of Zanzibar town. Both approaches to the anchorage have been adequately buoyed.

Tin in Queensland.—Consul F. W. Goding sends from Newcastle, October 23, 1902, a newspaper clipping which reads:

> A considerable amount of attention has lately been paid by mining investors to the North Queensland tin fields. The Stannary Hill mines are being steadily developed. The shaft on the Ivanhoe mine is down 300 feet, and the ore body is 24 by 18 feet wide. About 1,200 tons are in the ore bins, which will bulk nearly 20 per cent. This is the largest stack of rich ore that has been seen in one heap in North Queensland. The Kitchener shaft has been sunk to a depth of 250 feet, and the ore body opened up, without encountering the walls, is 13 by 30 feet, bulking about 8 per cent. The site chosen on the Walsh River for the Stannary battery and concentrating mill has been cleared. Its erection will be immediately commenced. The 20-head battery being erected will treat 400 tons weekly, which, with 10 per cent ore, should show very handsome profits. The Vulcan mine, at Irvinebank, is still on good ore, and last month their crushing of 800 tons gave over 10 per cent of oxide. They are now down about 800 feet. About 5 miles from Coolgarra very rich lodes are being developed.

Blockade of Venezuelan Ports.—The Department has received from Mr. Henry White, secretary of embassy at London, under date of December 20, 1902, copy of the official notification of the blockade of certain ports of Venezuela, as follows:

SUPPLEMENT TO THE LONDON GAZETTE OF FRIDAY, DECEMBER 19, 1902—PUBLISHED BY AUTHORITY.

FOREIGN OFFICE, *December 20, 1902.*

It is hereby notified that as the United States of Venezuela have failed to comply with the demands of His Majesty's Government, a blockade by His Majesty's naval forces of the ports of La Guaira, Carenero, Guanta, Cumana Carupano, and the mouths of the Orinoco is declared, and such blockade will be effectively maintained from and after the 20th day of December, subject to an allowance of the following days of grace: For vessels sailing before the date of this notification from West Indian ports and from ports on the east coast of the continent of America, ten days for steamers and twenty days for sailing vessels; from all other ports, twenty days for steamers and forty days for sailing vessels; for vessels lying in ports now declared to be blockaded, fifteen days. Vessels which attempt to violate the blockade will render themselves liable to all measures authorized by the law of nations and the respective treaties between His Majesty and the different neutral powers.

Banks in Salvador.—Consul-General John Jenkins reports from San Salvador, November 14, 1902:

The directors of the London Bank of Central America, Limited, at a meeting in London, on October 1, 1902, stated that an amalgamation had been made with the Banco Salvadoreño, which took over all the assets and liabilities of the former bank, in exchange for 1,202 of its paid-up shares of $100 each. The banks now doing business in Salvador are:

	Paid-up capital.
Banco Salvadoreño	*$3,126,000
Banco Occidental	1,000,000
Banco Agricola Commercial	922,500

Nicaraguan Customs Duties Payable in Gold.—The Department is informed by Consul C. Donaldson, of Managua, and by Consul A. L. M. Gottschalk, of San Juan del Norte, that the Government of Nicaragua has published a decree by which all customs duties are made payable on a gold basis. This makes the duty, Mr. Donaldson notes, equal to the value established at the time the present schedule was arranged, or about 2½ to 1 for gold. He adds:

This decree is intended to give the Government the same per cent ad valorem that it received formerly, which it was not getting by accepting its own depreciated paper currency at a value equal to silver. For the last few weeks, exchange has been steadily rising, until to-day United States gold, or drafts, are worth about 800 per cent premium.

Import Duties in Santo Domingo.—The Department has received from Minister Powell, of Santo Domingo, under date of November 20, 1902, translation of a decree extending the period for the increase of duties on goods from countries with which there is no reciprocity treaty. The decree provides:

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*Silver. 1 peso=40 cents gold.

> The time provided in article 4 of the decree of September 12, 1902,* for the application of the surcharge is prolonged for three months more—that is to say, the increase to be applied in four months will not be applied for seven months, the one in seven months for ten months, etc.

Reduction of Mexican Duty on Wheat.—Under date of December 6, 1902, Vice-Consul J. G. Pagés reports from Veracruz:

By an executive decree of the Mexican Government, dated November 7, 1902, the import duty on wheat has been reduced from $5 to 50 cents† per 100 kilograms (220.46 pounds). This decree went into effect on November 15, 1902, and is to remain in force until March 31, 1903. The object of this measure is to relieve the present scarcity of wheat.

Embargo on United States Cattle in Canada.—Consul-General C. E. Turner sends from Ottawa, December 3, 1902, a newspaper item in regard to shipments of cattle from the New England States, as follows:

> In the interest of cheap and efficient transportation of Canadian cattle to the British market, Hon. Sydney Fisher addressed to the British Board of Agriculture, through the high commissioner in London, a request to be allowed to relax the new Dominion customs regulation which prevents the Canadian Pacific Railroad from carrying cattle through to St. John because its line lies for a short distance in the State of Maine, and prevents vessels bound from Portland and Boston to British ports from carrying cattle from St. John and Halifax. The answer to that request was a positive refusal to concur in the proposed relaxations. The Intercolonial Railway will therefore continue to carry cattle to the Canadian seaboard, but to their trans-Atlantic destination they will have to be transported in direct steamers—at all events, not in steamers that make their cis-Atlantic terminus at Portland or Boston.

Mica Plant in Ottawa.—Consul-General C. E. Turner reports from Ottawa, December 6, 1902, that the Westinghouse Electric Company is about to establish in that city a large factory for the manufacture of mica, having secured land and buildings. To begin with, it will employ from 200 to 300 hands. It is said that while most of the mica employed formerly came from India, what will now be used is practically all Canadian.

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*ADVANCE SHEETS No. 1485 (November 3, 1902).

†The Mexican dollar was valued by the Director of the United States Mint, October 1, 1902, at 41.7 cents gold. See ADVANCE SHEETS No. 1517 (December 11, 1902) for new method of collecting Mexican customs dues.

Canadian Commercial Agent in South Africa.—Consul-General W. R. Bigham writes from Cape Town, November 5, 1902:

The Canadian Government has sent a commercial agent to South Africa, and he has spent about four months in traveling over this colony and the former Boer country. I am told that the New Zealand government has a man here filling a similar position. English papers advocate the establishment of a British commercial agency here.

Inquiries for American Shotguns and Ammunition.—Consul G. H. Jackson reports from La Rochelle, November 18, 1902:

There have been received at this office several inquiries concerning American sporting arms. The shotguns most in use here are light weapons, weighing from 5 to 7 pounds. The ammunition is used to hunt partridges, quails, little bustards, and waterfowl. The market is supplied at present with French guns, as well as with many from Belgium and a very few from England. Catalogues and price lists should be sent to E. Bertrand, 28 Rue Chaudrier, La Rochelle.

Electricity for Purifying Drinking Water.—Consul-General Richard Guenther reports from Frankfort, December 8, 1902:

The city of Wiesbaden, Germany, has constructed extensive ozone waterworks at Schierstein for the purpose of obtaining a drinking water entirely free from pathogenic germs. The works are capable of rendering 250 cubic meters* per hour at a cost of 2 pfennigs (a little less than half a cent) per cubic meter. The ozone, generated by electric discharges in an apparatus composed of metal tubes, passes upward through coarse gravel contained in towers, while the water to be sterilized flows down and arrives at the bottom perfectly germless.

Canal between Brussels and Charleroi, Belgium.—Consul G. W. Roosevelt reports from Brussels, November 21, 1902:

As the canal connecting Brussels and Charleroi is the cheapest means of direct transportation for coal from the mines at Charleroi, the Department of Public Works is pushing the work of widening it. There is under consideration a new system for mechanical towing of boats by electric engines. Contracts for the work will not be made before the latter part of 1903.

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* 1 cubic meter of water equals about 214 gallons.

Rock-Salt Mine in Belgium.—Consul G. W. Roosevelt writes from Brussels, under date of November 20, 1902:

According to a communication to the Society of Archæology of Brussels, recent borings near Beeringen have resulted in the discovery of a mine of rock salt at a depth of about 3,000 feet. This is expected to add greatly to the commercial wealth of the country.

Changes in Persian Custom-Houses.—Under date of November 3, 1902,* Minister Griscom, of Teheran, sends translation of a note from the Persian Minister of Foreign Affairs, which states that the custom-houses situated on the Karun River have been taken out of the hands of the leaseholders and made a department of the Ministry of Customs. A director has been appointed by the Government to reside at Mohammerah, where the customs duty for that region will in future be collected. The offices at Shuster, Dizful, and other places have been closed.

Completion of Pacific Cable.—Consul-General J. P. Bray reports from Melbourne, November 4, 1902, that the Pacific cable from Australia to London has been completed. The cable is entirely through British territory, and the sections are as follows: Vancouver to Fanning Island, 3,240 nautical miles; Fanning Island to Fiji, 2,093 miles; Fiji to Norfolk Island, 961 miles; Norfolk Island to Brisbane, 834 miles; Norfolk Island to New Zealand, 537 miles.

Scarcity of Wheat in Australia.—Consul-General J. P. Bray reports from Melbourne, November 3, 1902, that there is a serious shortage in the grain yield of Australia, and that in consequence numerous inquiries are being made at that consulate-general with regard to imports of wheat from the Pacific coast. Many shipments of American wheat have already been arranged for.

Mineral Lake in Siberia.—Commercial Agent R. T. Greener writes from Vladivostock, October 8, 1902:

About 15 miles from Ujoora, in the Atchinsk district, is situated a small lake, Utchoom by name, the waters of which have been found to contain curative properties. They are especially efficacious in the cure of wounds, rheumatism, scrofula, catarrh, skin diseases, and nervous disorders. The water is of a bitter, salty taste.

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* The change may not go into effect for a month or two.

Duty on Foreign Wines at Vladivostock.—The Department has been informed by Commercial Agent R. T. Greener, of Vladivostock, under date of October 8, 1902, that an order was received by the local custom-house early in October to levy, in addition to the usual duty, a tax on all foreign wines of 1.75 rubles (90 cents), and on foreign champagne and cognac of 2 rubles ($1.03) per bottle.

Highways in the Caucasus.—Consul-General W. R. Holloway writes from St. Petersburg, November 29, 1902:

Since the return of the Minister of Ways and Communications from an inspection tour of the Caucasus, it is announced that plans for building a network of narrow-gauge railroads are under discussion. It is proposed to authorize the organization of private companies to build these roads, the Government to indorse their bonds to the amount of $250,000,000.

Inquiry for Furniture in Russia.—The Bureau of Foreign Commerce has received from S. Zuckermann, Mohilew on Dnieper, a request for the addresses of several first-class firms trading in household furniture and stuffs for furniture.

Demand for Copper Sulphate in Greece.—Consul F. W. Jackson telegraphs from Patras, December 18, 1902, that the Greek Currant Bank asks for 1,000 tons of sulphate of copper,* to be delivered in February.

Knockdown Furniture for England.—Consul Marshal Halstead, of Birmingham, December 8, 1902, writes that he has an inquiry for the correct address of the National Knockdown Furniture Company. The firm making this inquiry states that it has a demand for these goods.

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*See ADVANCE SHEETS NOS. 1236, 1244, and 1264; CONSULAR REPORTS NOS. 257, 258, and 259.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
J. F. Monaghan, Chemnitz...	Nov. 22, 1902	English trades unions......	Department of Labor.
E. Schneegans, Saigon.........	Nov. 16, 1902	Rice..................................	Department of Agriculture.
Do..................................	Nov. 20, 1902	........do..............................	Do.
F. D. Hill, Amsterdam.........	Dec. 10, 1902	British crops......................	Do.
F. D. Chester, Budapest........	Nov. 20, 1902	Hungarian horticulture.....	Do.
W. R. Holloway, St. Petersburg.	Dec. 10, 1902	Winter-wheat crop..........	Do.
M. Halstead, Birmingham.....	Dec. 8, 1902	Bacterial treatment of sewage.	Do.
R. T. Greener, Vladivostock..	Oct. 18, 1902	Education in Siberia........	Bureau of Education.
G. W. Roosevelt, Brussels.....	Dec. 17, 1902	Insalubrious industries.....	Department of Labor.
W. F. Grinnell, Manchester..	Dec. 16, 1902	Health of Great Britain...	Marine-Hospital Service.

FOREIGN REPORTS AND PUBLICATIONS.

Trade of San Thomé and Principe.—According to a British consular report (No. 2922, annual series) the value of the imports into these islands has doubled in five years, as the following statement—the latest returns obtainable—shows:

Year.	Value.	
	Milreis.*	
1896	1,001,385	$852,615
1897	1,226,588	1,044,609
1898	1,663,914	1,417,071
1899	1,971,741	1,679,234
1900	2,037,961	1,735,593

* 1 milreis=85 cents at present rate of exchange.

The exports from San Thomé alone were valued as shown below:

Year.	Value.	
	Milries.	
1896	2,275,493	$1,937,894
1897	1,969,112	1,676,952
1898	2,536,977	2,160,595
1899	3,375,138	2,874,388
1900	3,525,772	3,002,679
1901	4,370,465	3,722,045

The report says:

> The total value of the exports from Principe in 1901 amounted to 509,696,836 reis ($434,097), of which sum cocoa contributed 501,658,640 reis ($427,031), the export value of 1,791 metric tons. The imports, such as cotton goods, wines, food stuffs, hats, boots and shoes, soap, candles, etc., are almost all of Portuguese origin. Machinery and tools used in the cultivation, drying, and cleaning of cocoa and coffee, the most important products of the islands, are chiefly of American make. There is an increasing demand for machinery for sawmills, hydraulic wheels, turbines, machine belting, hoes, machetes, plows, and in fact every kind of machinery and tools for agricultural purposes. Only one-fourth of the island of San Thomé is under cultivation, with 212 plantations, employing over 1,000 laborers. Principe has 50 plantations; some of the larger employ from 300 to 500 laborers. Some of the plantations have their own private installations of electric lighting. With the large amount of water power which is distributed over the island electricity should be generated at a small expense. One of the greatest needs of these islands is better means of transportation. There are many kinds of hard woods to be found in abundance on both islands, and a light railway would no doubt be the means of opening up a new and valuable industry. Many of the plantations are worked on the most primitive methods, and the presence of a practical man is required to give an estimate of the initial cost of the change to more modern and economical methods.

Fair of Nizhni Novgorod.—A recent edition of the Revue du Commerce Extérieur, of Paris, says:

The great Russian fair has shown signs of decay for a number of years; many large firms, which formerly did an important business at this fair, have ceased to participate. More and more, it is becoming the custom in the southern and Volga districts to supply themselves directly from the centers of production, notably from Moscow; at the same time, a series of bad harvests has materially reduced the purchasing power of Siberia and the Ural provinces. On the other hand, the desire to free themselves from intermediate agents, who claim the greater part of the profits without assuming the risks of the market, has induced many manufacturers of Moscow to establish branch houses in the different towns along the route of the Trans-Siberian Railway. These establishments do not appear, however, to have given the expected results. The Siberian market is much too extensive, the means of communication still too imperfect, and the commercial organization too primitive for it to be sufficient to establish warehouses at a few points. A multitude of houses would be needed to insure success, which, in the present condition of things, is quite impossible. Those houses offering their customers a great choice of different articles have the best chances of success in these regions; and it is certainly to the interest of merchants to exhibit their stock of goods at a fixed epoch of the year, upon a market where the sale of the principal products of the country will permit them to judge of the importance of the resources at the disposition of the consumer, and where the offer of manufactured articles in bulk facilitates the normal establishment of prices. A better appreciation of the economic conditions of the country has, therefore, decided a certain number of business firms of Moscow and Poland to again direct their attention to the fair of Nizhni Novgorod, which opened this year under particularly favorable circumstances. The harvests promised satisfactory results; the exportation of butter (in 1901 represented by about $12,875,000) will, from the good condition of the pastures, doubtless show a great increase. Besides this, the completion of the new Transouralian road, and also of the line from Tchoysk to Kobdo, placing the Altaï in direct communication with Mongolia, has opened markets for Siberian products and favored the commercial activity of these regions. Finally, navigation on the Volga opened early this year, and people hastened to profit by it, the freight being usually lower at the beginning of the season. Consequently, at the opening of the fair, most of the merchandise was in place.

The fair of Nizhni Novgorod is a center of supply for the merchants of Persia and an important market for the products of that country, especially for its dried fruits. Nizhni Novgorod is also a great market for leather and horse and cow hides. Varsovie, Libau, and Dvinsk send leather for saddles; in articles manufactured from leather, there was little animation. To facilitate trade, the bank of the Empire lowered the rate of exchange during the time of the fair.

Reclamation of the Pontine Marshes.—The Nachrichten für Handel und Industrie, of Berlin, has the following:

For many years the draining and agricultural recovery of the Pontine marshes has been a question of the liveliest interest in Italy. The term "marsh" is not quite correct as applied to this land, as it is only in the rainy season that the swollen mountain streams overflow the broad, deep canals, and, finding no other outlet, cover the surrounding low grounds and form marshes. At the close of winter, these grounds are quickly dried by the sun. The surface exposed to these floods is estimated at 16,000 hectares (39,536 acres), while the entire Pontine marsh has an area of 200,000 hectares (494,200 acres). In the spring, the whole country is a sea of flowers; the lands which, only a short time before, formed the so-called marshes are now planted with maize, which grows with marvelous luxuriance. For this reason the owners of these lands regard with dissatisfaction the intended diversion of the mountain waters. The entire tract of land is extraordinarily fertile and productive, but malaria casts a deep shadow over it. The evaporating waters and the marshy ground along the canals engender innumerable mosquitoes and deadly fever. From June until late autumn, the country is practically uninhabitable, and only a few resident tenants are to be found. Through the building of the Velletri-Terracina Railway, the Appian Way, which cuts in a straight line through the entire tract, has become completely depopulated. One can now travel 31 miles over the road without meeting a human being. To remedy this condition of things, the Italian Government passed a law in 1899 which obliged the owners of the ground to carry out the following works:

1. Diversion of the mountain waters.
2. Regulation of the mountain streams in the hills.
3. Cleansing of existing canals.
4. Draining of the submerged lands either by producing a natural outlet or by mechanical aid.

The Government engineer has perfected the necessary plans for the draining and agricultural recovery of these lands. The works are to be distributed over a period of twenty-four years, and 7,000,000 lire ($1,351,000) was appropriated for the cost. In this slow work a large part of the appropriation must necessarily be absorbed by the cost of administration and incidental expenditures.

Foreign Trade of Hungary.—A report in the Nachrichten für Handel und Industrie, of Berlin, says that the foreign trade of Hungary in 1901 was distributed according to countries of origin as follows:

Country.	Imports.	Exports.
Austria	$242,593,064	$240,419,048
Germany	16,110,016	37,676,244
Servia	8,820,416	2,354,648
British India	5,714,832	4,928,252
Italy	5,272,632	8,331,316
Great Britain	4,838,740	6,473,540
Bosnia and Herzegovina	3,835,884	6,369,020
Roumania	3,575,120	3,858,396
France	2,723,416	7,687,044
United States	2,388,148	1,396,280
Brazil	1,470,784	645,612
Turkey in Europe	1,394,672	2,011,424
Other countries	8,813,984	16,929,828
Total	307,551,708	339,070,652

Among the most important articles of import, the following values were reached:

Description.	Value.	Description.	Value.
Flour, rice	$8,202,408	Leather and manufactures of	$17,136,188
Cotton and manufactures of	49,743,212	Iron and ironware	14,857,652
Linen and manufactures of	9,592,256	Machinery and parts of	11,358,912
Wool and manufactures of	27,314,828	Musical instruments, clocks, and hardware	12,774,756
Silk	12,666,752	Fuel	12,986,476
Clothing (wearing apparel)	18,886,496		

The chief articles of export in 1901 were valued as shown below:

Description.	Value.	Description.	Value.
Flour, rice	$111,482,908	Fats	$7,835,248
Sugar	12,833,448	Beverages	11,100,384
Cattle	102,964	Fuel	23,581,320
Animal products	[illegible]02,720		

The Formosa Sugar Industry.—According to the Indische Mercuur, the production of sugar in Formosa has retrograded during the last few years. Twenty years ago, something like 950,000 piculs (126,600,000 pounds) were exported; now, the total yearly production barely reaches 700,000 piculs (93,300,000 pounds). More kinds of sugar cane are now grown, and recently a variety introduced from Hawaii has given good results. It yields from 12 to 15 per cent sugar. Artificial fertilizers and irrigation are employed. The greater part of the present production is used in the unrefined state. A small company was formerly the only one occupied with the manufacture of sugar, but recently a large joint-stock enterprise has been established in the southern part of Formosa; there is no lack of workmen for the factory, but the scarcity of coal is a very great hindrance. The government is trying to develop the sugar industry by means of bounties. A short time ago, 10 modern presses were brought from America and allotted to the manufactories. The great Japanese factory, which is situated on the railway between Taiman and Takao, produces refined as well as raw sugar. The daily output is 25 tons.

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Vol. LXXI. No. 270.

CONSULAR REPORTS.

MARCH, 1903.

COMMERCE, MANUFACTURES, ETC.

[FOR TABLE OF CONTENTS, SEE FIRST PAGE.]

DEPARTMENT OF STATE * UNITED STATES OF AMERICA *

WASHINGTON:
GOVERNMENT PRINTING OFFICE
1903.

CAMBRIDGE, MA

CONTENTS.

Page.
List of Publications.. IX
I.—Our Foreign Commerce in 1902........................*Emory* 323
II.—New Zealand Labor Laws..............................*Dillingham* 332
III.—Irrigation Works of India............................ } *Patterson* 356
IV.—Forest Administration of British India............ } 359
V.—Development of Traffic on the Siberian Railroad, *Holloway* 362
VI.—New Safety Device for Railways...... } 363
VII.—The New German Tariff.................................. } *Mason* 369
VIII.—Metric Weights and Measures in Germany.......... } 374
IX.—German Shipbuilding: Progress on the Weser......*Diederich* 379
X.—Brussels Conference and French Sugar..................*Covert* 382
XI.—European Sugar Production...............................*Diederich* 385
XII.—French Automobile Exposition...........................*Haynes* 386
XIII.—American Exhibits at Paris Automobile Show..........*Gowdy* 388
XIV.—Repairing Aërial Wires by Automobile in France.....*Haynes* 390
XV.—Railway Automobiles in Europe........................ } *Halstead* 392
XVI.—American Locomotives in England..................... } 393
XVII.—Iron and Steel Trades in Scotland.................. } *Fleming* 395
XVIII.—Joint-Stock Companies in Scotland.................... } 396
XIX.—Manchester Exports to the United States...........*Grinnell* 398
XX.—Great Britain's Beef Supplies..........................*Mahin* 399
XXI.—The Value of Rational Methods in Coke Production..*Mason* 400
XXII.—Water Power in France...................................*Mason* 402
XXIII.—The Simplon Railway.....................................*Pearson* 405
XXIV.—Rouen-American Steamship Communication...........*Haynes* 406
XXV.—Sand Bricks in France.....................................*Gowdy* 408
XXVI.—United States Trade with France.....................*Thackara* 409
XXVII.—The Bank of France......................................*Gowdy* 413
XXVIII.—Photographs on Fruit in France.......................*Haynes* 416
XXIX.—The Wool Trade of Marseilles...........................*Skinner* 416
XXX.—Textile Industry of St. Etienne........................*Brunot* 418
XXXI.—The Silkworm in Spain.....................................*Carleton* 418
XXXII.—Silkworms in Italy..*Jarvis* 419
XXXIII.—Commercial Notes from Italy..........................*Richmond* 420
XXXIV.—Opening for Sulphate of Copper in Greece..........*Jackson* 424
XXXV.—Trade of Slavonia...*Chester* 424

Page.
XXXVI.—Old Vienna Porcelain Figures.....*Hurst* 425
XXXVII.—Steam Power of Prussia in 1902.....*Langer* 426
XXXVIII.—Shoemakers' Exhibition in Hamburg.....*Monaghan* 427
XXXIX.—Exhibition of Food Stuffs at Ghent.....*Morris* 428
XL.—Russian Exhibition of Historical Attire..... } *Holloway* 429
XLI.—Russian Iron Industry..... } 430
XLII.—Russian Merchant Marine in 1901.....*Smith* 431
XLIII.—Russian Crop of Winter Cereals..... } *Holloway* 432
XLIV.—Salt Mines of Iletzk, Russia..... } 433
XLV.—New Source for German Cotton.....*Monaghan* 434
XLVI.—France and Her Colonies.....*Skinner* 434
XLVII.—Railway Construction in Africa.....*Ravndal* 438
XLVIII.—Lumber and Timber Trade in Lourenço Marquez.....*Hollis* 439
XLIX.—Cuban Customs Tariff.....*Squiers* 440
L.—Preparation of Zacaton in Mexico.....*Pagés* 442
LI.—Loan in Nicaragua.....*Donaldson* 443
LII.—Strike at Buenos Ayres.....*Mayer* 444
LIII.—Civil-Marriage Law of Ecuador.....*Sampson* 444
LIV.—Meat Products in Paraguay.....*Ruffin* 445
LV.—Blockade of Venezuelan Ports.....*Tower* 446
LVI.—Germany's Trade with Venezuela.....*Guenther* 447
LVII.—Development of Niagara Power.....*Brush* 448
LVIII.—Amherstburg-Windsor Electric Road.....*Martin* 450
LIX.—Railway Extensions in British Columbia.....*Pollock* 451
LX.—Proposed Labor Arbitration in British Columbia.. } *Dudley* 451
LXI.—Immigration into Northwest Canada..... } 452
LXII.—Notes (Architectural Contest in Greece—Sulphuric Acid on Dried Fruit—Tea Culture in the Caucasus—Sugar Yield in Russia—Siberian Copper—Dalny, Russia's Eastern Port—Custom Formalities on the Russo-Chinese Frontier—Exhibit of Photography at St. Petersburg—Odessa-Naples-New York Steamship Line—Mining Concessions in Nicaragua—Cuban Customs Tariff—Completion of Cuba Central Railroad—Dominican Customs Revenue—New Stage-Coach Line in Honduras—New Mining Enterprise in Spain—Harbor and Railway in Cyprus—Proposed Hungarian Export Union—German Tariff Bill—New German Cable Steamer—Industrial Combination in Sweden—Production of Zinc by Electricity in Sweden—Railway Contract in Portuguese West Africa—Mosquito Screens in Lourenço Marquez—Quinine Auction at Batavia—German Chamber of Commerce for Tsintau—Naphtha Springs on Sakhalin Island—Railway Mileage in Russia—Antisocialistic Society in Sweden—German Exposition for

Page.
Welfare of Labor—Anthracite Coal in British Columbia—Chinese Enterprise at Vancouver—Demand for American Machinery at Quito—Leases of Rubber Land in Peru—Reduction of Taxes in Colombia—Import Duties in Colombia—Request for Trade Information—Hungarian Firm in the United States—Vote on New Swiss Tariff—American Shoes in England—Combination of Swedish Lumber Companies—Consular Reports Transmitted to Other Departments)........................ 454
LXIII.—Foreign Reports and Publications (German Commerce with Africa—Trade of the Gold Coast in 1901—Liquid Fuel in the East—Commercial Movement of the Port of Suez—Florentine Industries—Italian Cotton Textiles in Roumania—Commerce of France in 1902).. 468

REPORTS BY COUNTRIES.

Africa: Page.
  Lumber and timber trade in Lourenço Marquez 439
  Mosquito screens in Lourenço Marquez 463
  Railway construction in 438
Africa, Portuguese West:
  Railway contract in 462
Argentine Republic:
  Strike at Buenos Ayres 444
Austria-Hungary:
  Hungarian firm in the United States 466
  Old Vienna porcelain figures 425
  Proposed export union in Hungary 461
  Request for trade information, Austria 466
Belgium:
  Exhibition of food stuffs at Ghent 428
Canada:
  Amherstburg-Windsor electric road 450
  Anthracite coal in British Columbia 464
  Chinese enterprise at Vancouver 465
  Development of Niagara power 448
  Immigration into northwest 452
  Proposed labor arbitration in British Columbia 451
  Railway extension in British Columbia 451
China:
  Custom formalities on the Russo-Chinese frontier 457
  Dalny, Russia's eastern port 456
  German chamber of commerce for Tsintau 463
Colombia:
  Import duties in 466
  Reduction of taxes in 465
Cuba:
  Completion of Central Railroad of 459
  Customs tariff of 440, 458
Cyprus:
  Harbor and railway in 460
Dominican Republic:
  Customs revenue of 459
Ecuador:
  Civil-marriage law of 444
  Demand for American machinery at 465
England:
  American shoes in 466
  American locomotives in 393
  Manchester exports to the United States 398

	Page.
EUROPE:	
Railway automobiles in	392
Sugar production of	385
FRANCE:	
Aërial wires, repairing by automobile in	390
American exhibits at Paris automobile show	388
And her colonies	434
Automobile exposition in	386
Bank of	413
Brussels conference, and sugar of	382
Photographs on fruit in	416
Rcuen-American steamship communication	406
Sand bricks in	408
Textile industry of St. Etienne	418
The wool trade of Marseilles	416
United States trade with	409
Water power in	402
GERMANY:	
Exposition for welfare of labor in	464
Metric weights and measures in	374
New cable steamer in	461
New safety device for railways of	363
New source for cotton for	434
New tariff of	369
Shipbuilding in: Progress on the Weser	379
Shoemakers' exhibition in Hamburg	427
Steam power of Prussia in 1902	426
Sulphuric acid on dried fruit in	454
Tariff bill	461
Tariff, new	369
The value of rational methods in coke production	400
Trade of, with Venezuela	447
GREAT BRITAIN:	
American locomotives in England	393
American shoes in England	466
Beef supplies of	399
Iron and steel trades in Scotland	395
Joint-stock companies in Scotland	396
Manchester exports to the United States	398
GREECE:	
Architectural contest in	454
Opening for sulphate of copper in	424
HONDURAS:	
New stage-coach line in	459
INDIA:	
Irrigation works of	356
INDIA, BRITISH:	
Forest administration of	359
ITALY:	
Commercial notes from	420
Odessa-Naples-New York Steamship Line	457

ITALY—Continued. Page.
  Silkworms in ... 419
  The Simplon Railway ... 405
JAVA:
  Quinine auction at Batavia ... 463
LOURENÇO MARQUEZ:
  Lumber and timber trade in ... 439
  Mosquito screens in ... 463
MEXICO:
  Preparation of zacaton in ... 442
NEW ZEALAND:
  Labor laws of ... 332
NICARAGUA:
  Loan in ... 443
  Mining concessions in ... 458
PARAGUAY:
  Meat products in ... 445
PERU:
  Leases of rubber land in ... 465
PRUSSIA:
  Steam power of, in 1902 ... 426
RUSSIA:
  Crop of winter cereals ... 432
  Custom formalities on the Russo-Chinese frontier ... 457
  Exhibit of photography at St. Petersburg ... 457
  Exhibition of historical attire ... 429
  Iron industry of ... 430
  Merchant marine of, in 1901 ... 481
  Odessa-Naples-New York Steamship Line ... 457
  Railway mileage in ... 464
  Salt mines of Iletzk ... 433
  Sugar yield in ... 455
  Tea culture in the Caucasus ... 455
SCOTLAND:
  Iron and steel trades in ... 395
  Joint-stock companies in ... 396
SIBERIA:
  Copper in ... 456
  Development of traffic on railroad of ... 362
  Naphtha springs on Sakhalin Island ... 464
SLAVONIA:
  Trade of ... 424
SPAIN:
  New mining enterprise in ... 460
  Silkworm in ... 418
SWEDEN:
  Antisocialistic society in ... 464
  Combination of lumber companies of ... 467
  Industrial combinations in ... 462
  Production of zinc by electricity in ... 462
SWITZERLAND:
  The Simplon Railway ... 405
  Vote on new tariff of ... 466

UNITED STATES:
Page.
Foreign commerce of, in 1902 ... 323
Odessa-Naples-New York Steamship Line ... 457
VENEZUELA:
Blockade of ports of ... 446
Germany's trade with ... 447

Full directions for binding the Consular Reports are given in No. 131, page 663.

MALTA: Page.
Bonded stores for tobacco at ... 479
Import regulations at ... 426
Lace of ... 427
MANCHURIA:
Trade of, in 1902 ... 455
MEXICO:
Cattle market in ... 475
Customs duties on small shipments to ... 475
New railroad in Veracruz ... 352
Proposed patent laws in ... 475
NICARAGUA:
Agricultural products of ... 347
PALESTINE:
Railroad through ... 467
PERU:
Exhibition of alcohol appliances at Lima ... 341
Mineral and agricultural resources of ... 340
ROUMANIA:
Kerosene pipe line in ... 478
RUSSIA:
Exposition of photography at St. Petersburg ... 468
SIAM:
Windmills in ... 437
SIBERIA:
Fur industry of ... 464
SPAIN:
Almond outlook in ... 471
Olive growing in ... 422
Pier at Almeria ... 425
Trade information from ... 424
Trade notes from Andalusia ... 424
SWITZERLAND:
New buttonhole machine in ... 470
TRANSVAAL:
Transit dues on goods for ... 466
TURKEY:
American pork in ... 479
TURKEY IN ASIA:
Exposition at Sivas ... 472
Pier at Smyrna ... 479
URUGUAY:
Commerce of, for 1902 ... 346
Destruction of fruit scale in ... 476
VENEZUELA:
Duty on pine in ... 480
Tariff changes in ... 476

Full directions for binding the Consular Reports are given in No. 131, page 663.

PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—REVIEW OF WORLD'S COMMERCE, being a summary of the annual reports contained in Commercial Relations.

III.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

IV.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

V.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

VI.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880–81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885-86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications except Tariffs in Central America, etc., are exhausted and the Department is, therefore, unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled SPECIAL CONSULAR REPORTS. There are now the following SPECIAL CONSULAR REPORTS:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Files in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Stave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

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* Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Stave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1901).—Part I. Gas and Oil Engines in Foreign Countries. Part II. Silver and Plated Ware in Foreign Countries.

Vol. 24 (1902).—Creameries in Foreign Countries.

Vol. 25 (1902).—Stored Goods as Collateral for Loans.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Port Regulations, Refrigerators and Food Preservation; Sericulture, etc.; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to $20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to January 1, 1903, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1898, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1875–1877, 1879–1882, 1884–1887, 1895, 1897, and 1899 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—*Countries with fixed currencies.*

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S. gold.	Coins.
Argentine Republic..	Gold and silver..	Peso..................	$0.96,5	Gold—argentine ($4.82,4) and ½ argentine; silver—peso and divisions.
Austria-Hungary*.....	Gold	Crown................	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium.....................	Gold and silver..	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
British North America (except Newfoundland).	........do	Dollar................	1.00	
British Honduras......	........do	........do	1.00	
Chile.........................	........do	Peso....................	.36,5	Gold—escudo ($1.25), doubloon ($3.65), and condor ($7.30); silver—peso and divisions.
Costa Rica..................	.......do	Colon...................	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centisimos.
Cuba	Gold and silver..	Peso....................	.92,6	Gold—doubloon ($5.01,7); silver—peso (60 cents).
Denmark	Gold	Crown................	.26,8	Gold—10 and 20 crowns.
Ecuador †	........do	Sucre...................	.48,7	Gold—10 sucres ($4.8665); silver—sucre and divisions.
Egypt	........do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland	........do	Mark...................	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver..	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark...................	.23,8	Gold—5, 10, and 20 marks.
Great Britain............	........do	Pound sterling..	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver..	Drachma............	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	........do	Gourde...............	.96,5	Silver—gourde.
India ‡......................	Gold	Rupee	.32,4	Gold—sovereign ($4.8665); silver—rupee and divisions.
Italy	Gold and silver..	Lira	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §.....................	Gold	Yen	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia	........do	Dollar................	1.00	
Netherlands.............	Gold and silver..	Florin	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Newfoundland	Gold	Dollar................	1.01,4	Gold—$2 ($2.02,7).
Peru ‖.......................	........do	Sol	.48,7	Gold—libra ($4.8665); silver—sol and divisions.
Portugal	........do	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ¶...................	........do	Ruble	.51,5	Gold—imperial ($7.718) and ½ imperial ($3.80); silver—¼, ½, and 1 ruble.
Spain........................	Gold and silver..	Peseta...............	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold	Crown................	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver..	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay	........do	Peso....................	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela.................	Gold and silver..	Bolivar...............	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

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* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See CONSULAR REPORTS No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see CONSULAR REPORTS No. 238, p. 359.

§ Gold standard adopted October 1, 1897. (See CONSULAR REPORTS No. 201, p. 259.)

‖ Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896-97, p. 254.

B.—*Countries with fluctuating currencies, 1874–1898.*

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1— 1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*	Silver	Florin	$0.47,6	$0.45,3	$0.40,1	$0.34,5	$0.33,6	$0.42
Bolivia	do	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America	do	Peso	.96,5	.91,8	…………	.69,9	.68	.85
China	do	Haikwan tael	1.61	…………	…………	…………	…………	…………
Colombia	do	Peso	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador	do	do	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt †	Gold	Pound (100 piasters).	…………	4.97,4	4.90	4.94,3	…………	…………
India	Silver	Rupee	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan	Gold	Yen	.99,7	.99,7	…………	.99,7	.99,7	.99,7
	Silver		…………	…………	.87,6	.75,3	.73,4	.91,7
Mexico	do	Dollar	1.04,75	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡	Gold and Silver.	Florin	.40,5	.38,5	…………	…………	…………	…………
Peru	Silver	Sol	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia	do	Ruble	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1— 1891.	1892.	1893.	1894.	1896.	1898.
Austria-Hungary*	Silver	Florin	$0.38,1	$0.34,1	…………	…………	…………	…………
Bolivia	do	Boliviano	.77,1	.69,1	$0.61,3	$0.51,6	$0.49,1	$0.42,4
Central America	do	Peso	.77,1	.69,1	.61,3	.51,6	.49,1	.41,4
Colombia	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Ecuador	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	42,4
India	do	Rupee	.36,6	.32,8	.29,2	.24,5	.23,3	.20,1
Japan§	do	Yen	.83,1	.74,5	.66,1	.55,6	.52,9	…………
Mexico	do	Dollar	.83,7	.75	.66,6	.56	.53,3	.46
Peru	do	Sol	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Russia§	do	Ruble	.61,7	.55,3	.49,1	.41,3	.39,3	…………
Tripoli	do	Mahbub of 20 piasters.	.69,5	.62,3	.55,3	.46,5	.44,3	…………

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*The silver standard prevailed in Austria-Hungary up to 1892. The law of August 2 of that year (see CONSULAR REPORTS No. 147, p. 623) established the gold standard.

† The Egyptian pound became fixed in value at $4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

§ See footnote, table of fixed currencies.

C.—*Quarterly valuations of fluctuating currencies.*

Countries.	Monetary unit.	1900.				1901.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.	$0.42,7	$0.43,6	$0.43,8	$0.45,1	$0.46,8	$0.45,1	$0.43,6	$0.42,8
Central America.	Silver peso	.42,7	.43,6	.43,8	.45,1	.46,5	.45,1	.43,6	.42,8
China	Amoy tael	.69,1	.70,5	.70,9	.72,9	.75,7	.72,9	.70,5	.69,1
	Canton tael	.68,9	.70,3	.70,7	.72,7	.75,5	.72,7	.70,3	.68,9
	Chefoo tael	.66,1	.67,4	.67,8	.69,7	.72,4	.69,7	.67,4	.66,1
	Chinkiang tael	.67,5	.68,8	.69,3	.71,2	.74	.71,2	.68,8	.67,5
	Fuchau tael	.64	.65,2	.65,6	.67,4	.70,1	.67,5	.65,2	.64
	Haikwan tael	.70,3	.71,7	.72,1	.74,2	.77,1	.74,2	.71,7	.70,4
	Hankau tael	.64,7	.65,9	.66,3	.68,2	.70,9	.68,2	.65,9	.64,7
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.66,5	.67,7	.68,2	.70,1	.72,8	.70,1	.67,8	.66,5
	Niuchwang tael.	.64,8	.66,1	.66,5	.68,4	.71	.68,4	.66,1	.64,8
	Shanghai tael	.63,1	.64,4	.64,8	.66,6	.69,2	.66,6	.64,4	.63,2
	Swatow tael	.63,9	.65,1	.65,5	.67,4	.70	.67,4	.65,1	.63,9
	Takao tael	.69,6	.70,9	.71,4	.73,4	.76,2	.73,4	.70,9	.69,6
	Tientsin tael	.67	.68,3	.68,7	.70,7	.73,4	.70,7	.68,3	.67
Colombia	Silver peso	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1	.43,6	.42,8
Ecuador †	do	....	....	....	....	....	....	....	....
India	Silver rupee‡	.20,3	.20,7	.20,8	....	....	....	....	....
Mexico	Silver dollar	.46,4	.47,3	.47,6	.49	.50,9	.49	.49	.46,4
Persia	Silver kran	.07,9	.08	.08,1	.08,3	.08,6	.08,3	.08,3	.07,9
Peru †	Silver sol	.42,7	.43,6	.43,8	.48,7	....	....	....	....

Countries.	Monetary unit.	1902.				1903.
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.
Bolivia	Silver boliviano.	$0.41,3	$0.40,3	$0.38,2	$0.38,4	$0.36,1
Central America	Silver peso	.41,3	.40,3	.38,2	.38,4	.36,1
China	Amoy tael	.66,9	.65,1	.61,8	.62	.58,4
	Canton tael	.66,7	.64,9	.61,7	.61,9	.58,2
	Chefoo tael	.63,9	.62,3	.59,1	.59,3	.55,8
	Chinkiang tael	.65,3	.63,6	.60,4	.60,6	.57
	Fuchau tael	.61,8	.60,2	.57,2	.57,4	.54
	Haikwan tael	.68	.66,3	.62,9	.63,1	.59,4
	Hankau tael	.62,6	.60,9	.57,9	.58	.54,6
	Hongkong tael	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.64,3	.62,6	.59,5	.59,6	.56,1
	Niuchwang tael.	.62,7	.61,1	.58	.58,2	.53,3
	Shanghai tael	.61,1	.59,5	.56,5	.56,7	.53,9
	Swatow tael	.61,8	.60,2	.57,1	.57,3	.58,8
	Takao tael	.67,3	.65,5	.62,2	.62,4	.56,6
	Tientsin tael	.64,8	.63,1	.59,9	.60,1	.60,1
Colombia	Silver peso	.41,3	.40,3	.38,2	.38,4	.36,1
Mexico	Silver dollar	.44,9	.43,7	.41,5	.41,7	.39,2
Persia	Silver kran	.07,6	.07,4	.07	.07,1	.06,6

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* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† See footnote, table of fixed currencies.

‡ The sovereign is the standard coin of India, but the rupee is the money of account. See also table of fixed currencies.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal	4.422 gallons.
Ardeb	Egypt	7.6907 bushels.
Are	Metric	0.02471 acre.
Arobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1.12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	11.4 gallons.
Do	Spain (raisins)	100 pounds.
Batman or tabriz	Persia	6.49 pounds.
Berkovets	Russia	361.12 pounds.
Bongkal	India	832 grains.
Bouw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	529 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1.333⅓ (1⅓) pounds.
Do*	Japan	1.31 pounds.
Do	Java, Siam, and Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110.24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.46 pounds.
Chetvert	Russia	5.7748 bushels.
Chih	China	14 inches.

*More frequently called "kin." Among merchants in the treaty ports it equals 1.33⅓ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan	Sarawak	3,098 pounds.
Do	Siam (Koyan)	2,667 pounds.
Cuadra	Argentine Republic	4.2 acres.
Do	Paraguay	78.9 yards.
Do	Paraguay (square)	8.077 square feet.
Do	Uruguay	Nearly 2 acres.
Cubic meter	Metric	35.3 cubic feet.
Cwt. (hundredweight)	British	112 pounds.
Dessiatine	Russia	2.6997 acres.
Do	Spain	1.599 bushels.
Drachme	Greece	Half ounce.
Egyptian weights and measures	(*See* CONSULAR REPORTS No. 144.)	
Fanega (dry)	Central America	1.5745 bushels.
Do	Chile	2.575 bushels.
Do	Cuba	1.599 bushels.
Do	Mexico	1.54728 bushels.
Do	Morocco	Strike fanega, 70 pounds; full fanega, 118 pounds.
Do	Uruguay (double)	7.776 bushels.
Do	Uruguay (single)	3.888 bushels.
Do	Venezuela	1.599 bushels.
Fanega (liquid)	Spain	16 gallons.
Feddan	Egypt	1.03 acres.
Frail (raisins)	Spain	50 pounds.
Frasco	Argentine Republic	2.5096 quarts.
Do	Mexico	2.5 quarts.
Frasila	Zanzibar	35 pounds.
Fuder	Luxemburg	264.17 gallons.
Funt	Russia	0.9028 pound.
Garnice	Russian Poland	0.88 gallon.
Gram	Metric	15.432 grains.
Hectare	do	2.471 acres.
Hectoliter:		
Dry	do	2.838 bushels.
Liquid	do	26.417 gallons.
Joch	Austria-Hungary	1.422 acres.
Ken	Japan	6 feet.
Kilogram (kilo)	Metric	2.2046 pounds.
Kilometer	do	0.621376 mile.
Klafter	Russia	216 cubic feet.
Koku	Japan	4.9629 bushels.
Korree	Russia	3.5 bushels.
Kwan	Japan	8.28 pounds.
Last	Belgium and Holland	85.134 bushels.
Do	England (dry malt)	82.52 bushels.
Do	Germany	2 metric tons (4,480 pounds).
Do	Prussia	112.29 bushels.
Do	Russian Poland	11⅜ bushels.
Do	Spain (salt)	4,760 pounds.
League (land)	Paraguay	4,633 acres.
Li	China	2,115 feet.
Libra (pound)	Argentine Republic	1.0127 pounds.
Do	Central America	1.043 pounds.
Do	Chile	1.014 pounds.
Do	Cuba	1.0161 pounds.
Do	Mexico	1.01465 pounds.
Do	Peru	1.0143 pounds.
Do	Portugal	1.011 pounds.
Do	Spain	1.0144 pounds.
Do	Uruguay	1.0143 pounds.
Do	Venezuela	1.0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter	Metric	1.0567 quarts.
Livre (pound)	Greece	1.1 pounds.
Do	Guiana	1.0791 pounds.
Load	England (timber)	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 superficial feet.
Manzana	Costa Rica	1½ acres.
Do	Nicaragua and Salvador	1.727 acres.
Marc	Bolivia	0.507 pound.
Maund	India	$82\frac{2}{7}$ pounds.
Meter	Metric	39.37 inches.
Mil	Denmark	4.68 miles.
Do	Denmark (geographical)	4.61 miles.
Milla	Nicaragua and Honduras	1.1493 miles.
Morgen	Prussia	0.63 acre.
Oke	Egypt	2.7225 pounds.
Do	Greece	2.84 pounds.
Do	Hungary	3.0817 pounds.
Do	Turkey	2.82838 pounds.
Do	Hungary and Wallachia	2.5 pints.
Pic	Egypt	21¼ inches.
Picul	Borneo and Celebes	135.64 pounds.
Do	China, Japan, and Sumatra	133⅓ pounds.
Do	Java	135.1 pounds.
Do	Philippine Islands.	137.9 pounds.
Pie	Argentine Republic	0.9478 foot.
Do	Spain	0.91407 foot.
Pik	Turkey	27.9 inches.
Pood	Russia	36.112 pounds.
Pund (pound)	Denmark and Sweden	1.102 pounds.
Quarter	Great Britain	8.252 bushels.
Do	London (coal)	36 bushels.
Quintal	Argentine Republic	101.42 pounds.
Do	Brazil	130.06 pounds.
Do	Castile,* Chile, Mexico, and Peru	101.41 pounds.
Do	Greece	123.2 pounds.
Do	Newfoundland (fish)	112 pounds.
Do	Paraguay	100 pounds.
Do	Syria	125 pounds.
Do	Metric	220.46 pounds.
Rottle	Palestine	6 pounds.
Do	Syria	5¾ pounds.
Sagene	Russia	7 feet.
Salm	Malta	490 pounds.
Se	Japan	0.02451 acres.
Seer	India	1 pound 13 ounces.
Shaku	Japan	11.9305 inches.
Sho	do	1.6 quarts.
Standard (St. Petersburg)	Lumber measure	165 cubic feet.
Stone	British	14 pounds.
Suerte	Uruguay	2,700 cuadras (see cuadra).
Sun	Japan	1.193 inches.
Tael	Cochin China	590.75 grains (troy).
Tan	Japan	0.25 acre.
To	do	2 pecks.
Ton	Space measure	40 cubic feet.
Tonde (cereals)	Denmark	3.94783 bushels.
Tondeland	do	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo	Japan	6 feet square.
Tsun	China	1.41 inches.
Tunna	Sweden	4.5 bushels.
Tunnland	Sweden	1.22 acres.
Vara	Argentine Republic	34.1208 inches.
Do	Central America	32.87 inches.
Do	Chile and Peru	33.367 inches.
Do	Cuba	33.384 inches.
Do	Curaçao	33.375 inches.
Do	Mexico	33 inches.
Do	Paraguay	34 inches.
Do	Spain	0.914117 yard.
Do	Venezuela	33.384 inches.
Vedro	Russia	2.707 gallons.
Vergees	Isle of Jersey	71.1 square rods.
Verst	Russia	0.663 mile.
Vlocka	Russian Poland	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6418 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.
Decameter (10 meters) equals 393.7 inches.
Hectometer (100 meters) equals 328 feet 1 inch.
Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).
Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.
Are (100 square meters) equals 119.6 square yards.
Hectare (10,000 square meters) equals 2.471 acres.

ANNOUNCEMENT.

On July 1, 1903, the Bureau of Foreign Commerce of the Department of State, which has had charge of the publication and distribution of the CONSULAR REPORTS, will be transferred to the Department of Commerce and Labor, in pursuance of provisions in the act of Congress approved February 14, 1903, creating that Department, and will be consolidated with the Bureau of Statistics, transferred from the Treasury to the new Department. Reports from consular officers on commercial and industrial subjects will hereafter be transmitted through the Department of State to the Department of Commerce and Labor, and the latter will publish and distribute them.

A new bureau, to be known as the Bureau of Trade Relations, will, under authority of section 11 of the act of February 14, 1903, be organized in the Department of State on the 1st of July, to formulate, for the instruction of consular officers, the requests of the Secretary of Commerce and Labor; to prepare from the reports of consular officers for transmission to the Secretary of Commerce and Labor such information as pertains to the work of the Department of Commerce and Labor; to transmit consular reports on special subjects, other than commercial, to various branches of the Government service; and to compile information for the use of the Department of State in the consideration of questions arising in the conduct of official relations with foreign governments.

Requests for consular reports should hereafter be made to the Department of Commerce and Labor.

other words, was demonstrated that the foreign customer had not merely been tempted into buying from us by "cut" prices to get rid of surplus stock, but was so impressed by the superiority of things American that he might be depended upon to bid against the domestic purchaser, and that the export trade was therefore likely to become a stable factor of our industrial as well as of our agricultural prosperity.

THE HOME MARKET AND FOREIGN TRADE.

The gradual recognition of this probability by manufacturers and exporters would seem to account for the maintenance of interest in foreign sales and the continued efforts to extend them, notwithstanding the general increase of prosperity throughout the United States during 1902, with its vast growth in the volume of domestic consumption and the very marked enhancement of profits. There has, of course, been a considerable subsidence of export activity, especially on the part of those manufacturers upon whom the pressure for filling home orders has been greatest, but it is a notable and highly gratifying symptom that neglect of foreign trade for the more profitable home market has not been nearly so general as might have been expected. It would seem to be reasonable to conclude that the business world of the United States is becoming more and more alive to the fact that foreign trade is a good thing to hold on to, even during flush times, and is likely to be of immense value at a turn of the tide.

The economic movement which has characterized the recent industrial development of the United States in the creation of vast consolidations of capital, with the resulting augmentation of productive energy, promises, at no distant day, to outstrip any possible growth of domestic consumption. When such overproduction occurs, the result will be the same as if our prosperity were checked and the home market were again stagnant. In other words, we shall probably, in any case, have a large surplus of manufactured goods which we must export.

PROGRESS IN THE WORLD'S MARKETS.

It is reassuring to be told by our consuls that, in either event—that is, whether overproduction results from overstimulation of our industries or from diminished home consumption—the foreign markets are becoming more and more accessible to our goods and that, in even the remotest corners of the earth, we are gaining substantial headway. In the least developed and most unprogressive regions, such as Asiatic Turkey, the east coast of Africa, China, Korea, American manufactures show a steady advance, and in the most highly developed industrial countries our labor-saving machines and apparatus, especially, enjoy an ever-increasing popularity. The obvious deduction is that American goods possess distinguishing merits in such a wide range of utility and special fitness that we have only to properly cultivate our opportunities in order to indefinitely extend and hold foreign trade.

RECOVERY IN EXPORTS OF MANUFACTURES.

It is probably due to this increasing demand for our goods rather than to any diversion of effort by our manufacturers from the home market that there has been recovery in the export of factory products during the past year. The eagerness of foreign buyers in certain lines has also done much to impress upon our business interests the importance of not relaxing their grasp upon foreign markets to the point of absolute neglect. A wise merchant is not likely to lose sight of a steady customer, even at a time when he may seem unimportant in a stream of larger buyers; and our industrial concerns would have been wanting in ordinary business sense had they failed to perceive the value of keeping control of new outlets for their goods in anticipation of the time when they would again be needed.

The latest figures of the United States Treasury Department available at this writing are for the eleven months ended November 30, 1902. During that period, the value of the exports of manufactured articles was $377,635,961, or 31.8 per cent of the total exports, against $363,240,576, or 27.88 per cent, for the same period of 1901. The gain was, therefore, some $14,000,000. A large part of this increase was due to the rise in the export of copper (nearly $13,000,000), although this was partly offset by a decline of over $6,000,000 in exports of steel rails. There was, however, an actual gain in the sales abroad of cotton goods amounting to $7,000,000, due mainly to the restoration of normal trade conditions in China. As the New York Journal of Commerce of the 8th instant points out, the falling off was not general through the list of iron and steel exports, as is shown by the fact that the exports of structural iron and steel were practically the same during the two periods, while steel wire, builders' hardware, electrical machinery, pumps and pumping machinery, sewing machines, boilers and parts of engines, typewriters, miscellaneous machinery, and iron pipes and fittings all showed more or less increase. In agricultural implements, there was a gain of nearly $800,000; in fiber manufactures, $585,000; in india-rubber goods, $462,000; upper leather, $934,000; boots and shoes, nearly $400,000; tobacco manufactures, about $150,000; wood manufactures, $1,228,190; woolen manufactures, $25,000. Exports of locomotives fell off in value by only $77,582; cycles and parts, $11,834; cars, carriages, etc., $589,764; clocks and watches, $201,273; glass and glassware,

$34,705. With but two exceptions (cars, carriages, etc., and clocks and watches), the decreases in the items specified are small, while the gains are considerable in every instance save only in woolen goods.

AMERICAN GOODS STILL GAINING GROUND.

It is evident from these figures, taken in conjunction with the reports of the consular officers, that any sensible decline in the foreign demand for American goods is to be attributed to trade depression in the purchasing country, rather than to the substitution of other sources of supply, and that United States manufactures, so far from suffering a diminution of favor in any part of the world, are continuing to impress themselves upon foreign purchasers, and in some quarters have gained new territory, while at the same time extending the old. Although some branches of American industry are no longer attempting to compete in export rivalry because their energies are strained to the utmost to supply the home market, the steady increase of inquiries received by the Bureau of Foreign Commerce from important firms as to the opportunities for the sale of their goods abroad confirms the view that the export movement is sufficiently substantial to cause a general growth of interest and activity on the part of our industrial interests.

A MORE STRENUOUS RIVALRY PROBABLE.

It would be a serious mistake to assume from the indications which have been cited as favorable to our sustained and increasingly successful competition with the other industrial nations for a much larger share of the world's trade that we have only to go forward on existing lines. As has been pointed out in previous summaries of the annual reports of consular officers, our success has been more a matter of accident than of design, and was largely the result of economic conditions, peculiar to ourselves, which had no relation originally to foreign trade, but sprang from our absorption in an industrial activity purely domestic and directed solely to supplying the home market. Even yet, we can not be said to be manufacturing expressly for export to any large extent, and the study of conditions in foreign markets and the intelligent direction of industrial energy to meet them effectively has not gone much farther than the initial stage. Moreover, the success we have achieved and the superiority which our goods have developed when brought into comparison with those which had previously been most in favor in foreign markets have naturally aroused our chief competitors to the necessity of a more strenuous rivalry. That this competition is taking practical shape is seen not only in the substitution of American machinery and

American economies of production in many of the European industries, but in the agitation in Germany and Great Britain, especially, for the improvement of Government facilities, such as the consular service, the work of commercial agents, the publication of industrial and commercial reports, etc., for the promotion of trade.

PROSPECTS OF ANOTHER GLUT.

Such access of competitive energy may outweigh to a considerable extent the advantages we now enjoy, and it suggests the importance of preparing ourselves for the time when our goods may no longer be able to "sell themselves," as they have so largely done in the past and are still doing. It is within the bounds of reasonable probability, at least, to assume that, when another period of great accumulation arrives, we may find it difficult to unload upon foreign customers by merely shipping the excess abroad. We succeeded in doing this once because we took Europe by surprise, but it is by no means certain that we could do it again, now that Europe is fully awake to our industrial superiority and is equipping herself to meet us at every point. There is danger, too, that we may fail to appreciate the fact that our very prosperity at home must beget in time a condition of things which will make the need of foreign outlets imperative if we would keep our factories open and our laboring population fully employed. Prosperity inevitably stimulates production, and, sooner or later, as has already been indicated, we shall be face to face again with a large excess.

On this point Mr. C. Seymour Bell, the British commercial agent in the United States, says, in a report printed in September last, that as long as this country continues in its present prosperous condition, absorbing all that it can produce in the way of iron and steel, British manufacturers need not fear serious competition in those articles in the world's markets. "It may be pointed out, however," continues Mr. Bell, "that on the strength of the considerable imports much capital is being employed in extending existing and building new works in order to bring the supply up to the demand. The home market is, of course, the most profitable for the manufacturer, and, as long as the demand continues, little thought will be paid to other and less profitable markets, except in the way of keeping them in view, so as to be able to export on a large scale when the time arrives." Mr. Bell then gives from an American technical journal statistics of the provision being made for increased production, and adds that this prosperity can not last; there must be "an overproduction exceeding anything hitherto experienced" from the increasing output and a falling demand at home. To meet this contingency, preparations are being made by the railway, shipping, and other interests to carry the surplus cheaply to foreign countries. "The last of the great combines—the Atlantic shipping—is doubtless part of this great scheme." Meanwhile, adds Mr. Bell, those British manufacturers who have not already done so will have an opportunity of remodeling their works and placing them in a condition to be able to meet the inevitable and severe competition.

FOREIGN OUTLETS ESSENTIAL TO AMERICAN INDUSTRY.

Another striking illustration of the growing importance of foreign trade as the balance wheel of our industrial mechanism, even in times of great domestic prosperity, is seen in the effect, on two occasions, of the stoppage of the Chinese demand for cotton goods. During the Boxer troubles the Southern cotton mills, which manufacture especially for the Chinese market, were reduced to such serious straits by the suspension of orders from China that they were forced to undertake the production of a class of goods which competed with the output of the New England factories. Fortunately, the Chinese market was reopened to them just in time to prevent a crisis in the trade which would probably have proved disastrous. In October last, for some reason as yet unexplained, the Chinese demand for cotton goods again fell off, and it was not until the middle of December that the orders expected in October began to come in. In the meantime the Southern cotton mills once more were confronted with the alternative of competing with the New England industry or of remaining idle. In either case a heavy loss would have been inflicted upon an important interest. When we reflect that our exports of cotton goods to China represent but a part, though the greater part, of our sales of such goods abroad, it may be seen that very serious results might easily follow the withdrawal of even part of the foreign demand for the product of a particular industry.*

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*An interesting statement of the effect of the Chinese demand for cotton goods upon our domestic market was made by Mr. John Foord at a hearing before the Committee on Ways and Means, January 15, 1903. In the course of his argument, Mr. Foord said:

"I represent the American Asiatic Association, the American Association of China, and the American Asiatic Association of Japan, organizations which include most of the American merchants and manufacturers doing business with the Far East. Section 8 of the bill now before the committee concerns mainly that portion of our members doing business with China and with ports on the Red Sea. Specifically, it concerns those whose trade is in cotton textiles manufactured in the United States and destined for export to these markets. This trade, as you are probably aware, represents by far the largest proportion of all our exports of cotton cloth, and has been gained almost solely at the expense of the English manufacturer. That is to say, while the Chinese are buying but little more foreign cloth than they did ten years ago, the manufacturers of the United States are supplying four times as much of the total. The importance of this export outlet to the prosperity of the entire cotton industry of the United States was demonstrated during the Boxer troubles, when the Chinese market, or at least that part of it in which our goods have an established preeminence, was closed. A large proportion of the capital invested in Southern mills depends for its remunerative employment on the continuous development of this market, and their machinery is especially adapted to the kind of fabrics which it requires. Three years ago, the capacity of their warehouses was taxed to contain the unsold accumulations of export cloth, and they were compelled to turn their attention

AMERICAN INVESTMENTS ABROAD.

The truth is that the United States has been gradually drawn, without volition of its own and by the play of economic forces which it has more or less unconsciously generated and set in motion, into a state of greater or less dependence upon foreign markets for the maintenance of its industrial prosperity. This dependence is hardly perceptible to the manufacturer working full time and perhaps overtime to supply home orders, but is none the less real, even for him, since it may become imminent at any moment from a sudden change of conditions. Moreover, our trade relations with the world at large are constantly becoming more intimate and more reciprocal, not only from the growing sales of our goods but also from investments of American capital in foreign countries. We are exporting not only the products of our factories and workshops, but money, skilled labor, brains. Within the past few years, a number of our large industrial concerns have established plants in Europe, in Canada, and elsewhere for the manufacture of goods for which there was an active demand. The drift became so noticeable last year that the consuls were instructed to include in their annual reports any data upon this subject that they might be able to obtain. Their attention was also called to the fact that Americans were engaging largely in various business enterprises, such as street railways, furnishing supplies under government contracts, mining, etc., and they were told that full information as to such undertakings would be appreciated. In response to this instruction, a number of reports have been received which will be found in full in Commercial Relations. Consul-General Barlow states that over 1,000 United States companies, firms, and individuals have made investments in Mexico, aggregating $500,000,000 gold, one-half of it within

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to the making of the lighter goods adapted for the domestic market. The consequence was an absolute demoralization of prices in that market and the beginning of a cutthroat competition which would have brought about a disastrous crisis in the entire cotton industry of the United States. Fortunately, with the restoration of peace in China, normal conditions were reestablished and prosperity returned to the cotton mills of New England, as well as to those of the South. In a less striking but equally instructive way, we have had an illustration within the last month of the close interdependence between the prosperity of our export trade in cotton textiles and that of the domestic trade. It has happened, of late years, with almost unfailing regularity, that the season's orders for the Chinese market began not later than the middle of October. This year, for some reason not yet fully explained, the business was two months behind the usual time of beginning, and up to the second or third week in December it seemed as if paralysis had once more attacked the great Chinese market. Intimations of the entry of Southern mills, solely devoted to the making of export cloth, into the fields of domestic competition again began to be heard, and had their inevitably depressing influence on the tone of the home market. Fortunately, when the demand did set in, it came with a rush, and within twenty-one days orders were placed for 115,000 bales of our cotton domestics for immediate and future delivery in China. The cloud was lifted from the domestic market just as it was beginning to assume a threatening character, but the reminder was none the less impressive of the part played by this great export outlet for our cotton textiles in maintaining profitable conditions for the entire industry."

the past five years. In Canada, says Consul-General Bittinger, of Montreal, millions of dollars of United States capital have been invested during the past year in agricultural and timber lands and in mining and manufacturing industries. The Westinghouse Company has erected large plants in Canada, in England, and in France. In Russia, according to Consul Smith, of Moscow, the manufacture of air brakes has been begun by a New York firm. The Singer Company has branch works for the manufacture of sewing machines in Germany and Russia. An American firm manufacturing shoe machinery employs 100 hands at Frankfort-on-the-Main, of whom 7 or 8 are expert operatives from the United States. Another American house, manufacturing tanners' machinery, has storehouses and repair shops at Frankfort, at Vienna, Austria, and at Leicester, England. These instances are cited as showing that we are not only entering largely into the ordinary business life of foreign peoples in trade and in agricultural or mechanical pursuits, but in countries developing industrially, are becoming important factors of their progress in manufactures. It would seem to follow that as we broaden the scope of such enterprises we shall inevitably bring about a closer and closer state of interdependence.

NEED OF SYSTEMATIC TRADE METHODS.

As such interdependence grows closer, it necessarily becomes more sensitive to disturbing influences and more complex. When our trade relations with a foreign country are merely casual or intermittent, the reflex influence upon ourselves is comparatively unimportant; but when they become a permanent and growing factor of our business life, they affect the equilibrium of our whole economy and give rise to many difficult conditions. It follows, therefore, that, if our export of manufactures and our industrial investments in foreign countries have created a reciprocity of interests which is likely to continue and to be woven more and more inextricably into the web of our industrial activity, we can not afford to rely any longer upon instrumentalities not specially shaped for promoting trade intercourse with other nations and successful in the past only because they happened at the moment to be sufficient. The question whether our sudden emergence from domestic seclusion into the wide arena of international competition was to be merely transitory would seem to have been definitely settled in the negative. The measure of our success in that competition remains to be determined. It must depend not only upon the efficiency and greater productive capacity of our workmen and the superiority of our wares, but upon the ability we develop in winning trade from strenuous and skillful rivals. In other words, we must have the best machinery not merely for manufacturing goods, but for selling them when made.

THE CONSULAR SERVICE AS A TRADE AGENCY.

For years our consular officers have been supplying manufacturers and merchants with information as to almost every conceivable detail in the special requirements of particular localities for gaining and holding trade. These requirements vary not only with every country, but often with different sections of the same country. It is obvious that a careful study of them—as for example, the patterns, measurements, methods of packing, trade usages, terms of credits, etc., peculiar to a certain territory—is essential to the manufacturer or exporter if he is to properly equip himself for a sustained and energetic struggle with foreign rivals, already, in most cases, in occupation of the field. Whatever may be the defects of our consular service, it is at least showing itself to be generally alert and responsive to the new conditions, and it is due to its zealous cooperation that the Bureau of Foreign Commerce is enabled this year to complete the work of compiling the annual reports for the two volumes of Commercial Relations, of about 1,000 octavo pages each, a week in advance of any previous date of transmission to Congress. The consuls have also been most active in sending reports at frequent intervals on a great variety of subjects of interest to the industrial and commercial world, and these have been printed promply in the daily ADVANCE SHEETS, which, anticipating the monthly CONSULAR REPORTS, have rendered a service of current intelligence which is steadily winning popular recognition. A most gratifying evidence of the increasing value of the consular reports, of which there are now five classes—annual, quarterly, monthly, special, and daily—is found in the widespread demand for them on the part of colleges and schools as reference books in special courses of commercial instruction. This demand has grown up within the past few years, and, in itself, is symptomatic of the spread of popular interest in foreign trade.

In addition to the published reports, the consuls of late, by means of correspondence conducted under the supervision of the Department of State, have supplied a great mass of information to trade bodies and business firms, and in many cases have voluntarily exerted themselves in other ways to promote commercial expansion. Their efforts frequently elicit warm commendation in letters to the Department from the trade interests thus benefited, and, even when a consular officer lacks other qualifications, it seldom happens that he fails to exhibit the characteristic American spirit in "hustling" for business, not for himself, but for his country. With judicious improvements in the consular organization, it may readily be seen that the service might be made an unrivaled auxiliary of that concerted and intelligently organized movement for efficient export methods which promises soon to be an absolute prerequisite to further extension of our foreign trade.

Frederic Emory,
Chief,
Bureau of Foreign Commerce.

Department of State,
January 12, 1903.

NEW ZEALAND LABOR LAWS.

The "industrial conciliation and arbitration act of 1900," which is generally known as the chief "labor law," has thus far given fairly good satisfaction to the colony.

In compliance with many requests, I submit the following summary of its provisions:

The word "board" means a board of conciliation for an industrial district constituted under the act; "court" means the court of arbitration constituted under the act; "employer" includes persons, firms, companies, and corporations employing one or more workers; "industrial dispute" means any dispute arising between employers or industrial unions or associations of employers and one or more industrial unions or associations of workers in relation to industrial matters; "industrial matters" means all matters affecting or relating to work done, or to be done, by workers, or the privileges, rules, and duties of employers or workers in any industry not involving questions which are, or may be, the subject of proceedings for an indictable offense, and, without limiting the general nature of the above definition, includes all matters relating to—

(*a*) The wages, allowances, or remuneration of workers employed in any industry, or the members paid, or to be paid, in respect of such employment.

(*b*) The hours of employment, sex, age, qualification or status of workers, and the mode, terms, and conditions of employment.

(*c*) The employment of children or young persons, or of any persons, or class of persons, in any industry, or the dismissal of, or refusal to employ any particular person, or persons, or class of persons, therein.

(*d*) The claim of members of an industrial union of employers to preference of service from unemployed members of industrial unions of workers.

(*e*) The claim of members of industrial union of workers to be employed in preference to nonmembers.

(*f*) Any established custom or usage of any industry, either generally or in the particular district affected.

"Industrial association" means an industrial association registered under the act; "industrial union" means an industrial union registered under the act; "industry" means any business, trade, manufacture, undertaking, calling, or employment in which workers are employed; "officers" means president, vice-president, treasurer, or secretary; "prescribed" means prescribed by regulations under the act; "registrar" means the registrar of industrial unions under the act; "supreme court office" means the office of the supreme court in the industrial district wherein any matter arises to which such expression relates, and where there are two such offices in any such district it means the office which is nearest to the place wherein any such matter arises; "worker" means any person of any age or either sex employed by any employer to do any skilled or unskilled manual or clerical work for hire or reward in any industry.

The minister for labor has the general administration of the act; the registrar is, however, the person who, for the time being, holds the office of secretary for labor, or the governor may, from time to time, appoint some other person to act in this capacity. Any society, consisting of not less than two persons in the case of employers or seven in the case of workers, lawfully associated for the purpose of protecting or furthering the interests of employers or workers in, or in connection with, any specified industry or industries in the colony may be registered as an industrial union under this act, on compliance with the following provisions:

1. An application for registration shall be made to the registrar in writing, stating the name of the proposed industrial union, and signed by two or more officers of the society.

2. Such application shall be accompanied by (*a*) a list of the members and officers of the society; (*b*) two copies of the rules of the society; (*c*) a copy of a resolution passed by a majority of the members present at a general meeting of the society specially called in accordance with the rules for that purpose only, and desiring registration as an industrial union of employers; or, as the case may be, of workers.

3. Such rules shall specify the purpose for which the society is formed, and shall provide for (*a*) the appointment of a committee of management, a chairman, secretary, and any other officer, and, if thought fit, of a trustee or trustees; (*b*) the powers, duties, and removal of the committee and of any chairman, secretary, or any other officer or trustee, and the mode of supplying the vacancies; (*c*) the manner of calling general or special meetings, the quorum thereat, the powers thereof, and the manner of voting thereat; (*d*) the mode in which the industrial agreement and any other instrument shall be made and executed on behalf of the society, and in what manner the society shall be represented in any proceedings before a board or court; (*e*) the custody and use of the seal, including power to alter or renew the same; (*f*) the control of the property, an investment of the funds, and an annual or shorter periodical audit of the accounts; (*g*) for the inspection of the books and the names of the members of every person having an interest in the funds; (*h*) a register of members, and the mode and the terms on which persons shall become or cease to be members, and so that no member shall discontinue his membership without giving at least three months previous written notice to the secretary of his intention so to do, nor until such member has paid up fees, fines, levies, or other dues payable by him under the rules, except pursuant to a clearance card duly issued in accordance with the rules; (*i*) the purging of the rules by striking off any members in arrears of dues for twelve months, but not to free such person from arrears due; (*j*) the conduct of the business of the society at some convenient address, to be specified and be called "the registered office of this society;" (*k*) the amendment, repeal, or alteration of the rules, but so that the foregoing requisites of this subsection shall always be provided for; (*l*) any other matter not contrary to the law.

Whenever the registrar is satisfied that the society is qualified to register under the act, and that the provisions of the last preceding section thereof have been complied with, he can, without fee, register the society as an industrial union and issue a certificate of registration, which, unless proved to have been canceled, shall be conclusive evidence of the fact of such registration and of the validity thereof. The registrar at the same time records the rules and also the situation of the registered office. Every society which is properly registered as an industrial union becomes, from the date of registration, a body corporate by the registered name, which has perpetual succession and a common seal until its registration is canceled, as hereinafter mentioned. The act provides that there shall be inserted in the registered name of every industrial union the name of "employers" or "workers," according as such union is a union of employers or of workers, and also—except in the case of an incorporated company—the name of the industry in connection with which it is formed and the locality in which the majority of its members reside, for instance, "Christ Church Grocers' Industrial Union of Employers," or the "Wellington Tram Drivers' Industrial Union of Workers." Referring to trade unions registered under the trade union act of 1878, it is provided that any such trade union can be registered under that act by the same name, with the insertion of such additional words as aforesaid, and that every branch of a trade union shall be considered a distinct union, and that it can be separately registered as an industrial union under the act. The act also provides that for this purpose the rules, for the time being, of the trade union, with such additional modification as may be necessary to give effect to the act, shall, when recorded by the registrar, be deemed to be the rules of the industrial union. There are special provisions regarding the registration of societies of employers, to wit:

> In any case where a copartnership firm is a member of the society, each individual partner residing in the colony shall be deemed to be a member, and the name of each such partner, as well as that of the firm, shall be set out in the list of members; for instance, as "Watson, Brown & Co., of Wellington, boot manufacturers," the firm consisting of four partners, of whom the following reside in New Zealand—that is to say, "John Watson, of Wellington, and Charles Brown, of Christ Church." It is, however, provided that this subsection shall not apply where the society to be registered is an incorporated company, except where its articles or rules expressly forbid the same. Any company incorporated under any act may be registered as an industrial union of employers, and in such case the provisions of section 5 shall be deemed to be sufficiently complied with (*a*) if the application for registration is made under the seal of the company and pursuant to a resolution of the board of directors; (*b*) if it is accompanied by a copy of such resolution; (*c*) satisfactory evidence of the registration or incorporation of the company is given; (*d*) two copies of articles of association or rules of the company are

furnished; (*e*) a list containing the names of the directors and of the manager or other principal executive officer of the company are given; (*f*) and if the situation of the registered office of the company is stated. Also, in so far as the articles or rules of any such incorporated company are repugnant to the act, they shall, on the registration of the company as an industrial union of employers, be construed as applying exclusively to the company and not to the industrial union; also, that in no case shall an industrial union be registered under a name identical with that by which any other industrial union has been registered under the act, or by which any other trade union has been registered under the "trade union act of 1878," or so nearly resembling any such name as to be likely to deceive the members or the public.

The act also provides that in order to prevent the needless multiplication of industrial unions connected with the same industry in the same locality or industrial district, the registrar may refuse to register an industrial union in any case where he is of opinion that, in the same locality and connected with the same industry, there exists a union to which the members of such industrial union might conveniently belong. In this case, however, the registrar shall immediately notify such industrial union that its application has been declined. If such union is dissatisfied with the refusal, it may, in the prescribed manner, appeal to the court, whereupon the court, after making full inquiry, must report to the registrar whether, in its opinion, his refusal should be insisted on or waived, and the registrar shall be guided accordingly; provided, however, that the industrial union shall satisfy the court that, owing to the distance, diversity of interest, or other substantial reason, it will be more convenient for the members to register separately than to join any existing industrial union. Registration is intended to render the industrial union, and all persons who are members thereof at the time of registration, or who shall become members after such registration, subject, of course, to the jurisdiction given to a board and court respectively, and liable to all the provisions of the act, and all such persons shall be bound by the rules of the industrial union during the continuance of their membership. The act provides that copies of all amendments or alterations of the rules of an industrial union shall, after being verified by the secretary or some other officer of the industrial union, be sent to the registrar, who shall record the same upon being satisfied that the same will not conflict with the requirements of the act. It also provides that a printed copy of the rules of the industrial union shall be delivered by the secretary to any person requiring the same on payment of a sum not exceeding 1s. (24 cents). In all proceedings affecting the industrial unions, prima facie evidence of their rules and their validity must be given by the production of what purports to be a copy thereof, certified as a true copy under the seal of the union and the hand of the secretary or any other officer thereof.

In addition to its registered office, the industrial union may also have a branch office in any industrial district in which any of its members reside or exercise their calling. Upon application in that behalf by the union, under the seal and the hand of the chairman or secretary, specifying the situation of the branch office, the registrar shall record the same, and thereupon the branch office shall be deemed to be registered. The situation of the registered office and of each registered branch office of the industrial union may be changed, from time to time, by the committee of management, or in such other manner as the rules provide. Every such change shall be forthwith notified to the registrar by the secretary of the union, and thereupon the change shall be recorded by the registrar.

All fees, fines, levies, or dues payable to an industrial union, by any member thereof, under its rules may, in so far as they are owing for any period of membership subsequent to the registration of the society under this act, be sued for and recovered in the name of the union in any court of competent jurisdiction by the secretary or treasurer of the union, or by any other person who is authorized in that behalf by the committee of management or by the rules. An industrial union may purchase or take on lease, in the name of the union, or of trustees for the union, any house or building and any land not exceeding 5 acres, and may sell, mortgage, exchange, or let the same or any part thereof; and no person shall be bound to inquire whether the union or trustees have authority for such sale, mortgage, exchange, or letting, and the receipt of the union and the trustees shall be a discharge for the money arising therefrom. In the month of January of every year there must be forwarded to the registrar by every industrial union a list of the members and officers, including trustees of such unions, as at the close of the last preceding month; but it is provided that in the case of an incorporated company, it shall be sufficient if the list contains the names of the directors and of the manager, or other principal executive officer of the company; and, further, that an industrial union of workers shall not return as a member any worker whose subscription is twelve months in arrears. Each list must be verified by the statutory declaration of the chairman or secretary of the union. Such statutory declaration shall be prima facie evidence of the truth of the matters therein set forth. Every industrial union making default in duly forwarding such list commits an offense against the act, and is liable to a penalty not exceeding £2 ($9.73) for every week during which such default continues. Every member of the committee of management of any such union who willfully permits such default commits an offense against the act and is liable to a penalty not exceeding 5s. ($1.21) for every week during which he willfully permits such default. Proceedings for the recovery of any such penalty shall be taken in a summary way under "the justices of the peace act of 1882," on the information or complaint of the registrar, and the amount recovered shall be paid into the public account and form part of the consolidated funds; provided that before taking the proceedings the registrar shall give at least fourteen days' notice to the offending parties of his intention to do so. It is the duty of the registrar to supply parliament, within thirty days after its meeting in each year, with a return showing the number of members in each industrial union registered under the act.

Every industrial union can sue, or be sued, for the purposes of the act by the name by which it is registered, and service of any process, notice, or document of any kind must be effected by delivering the same to the chairman or secretary of such union, or by leaving the same at its registered office (not being a branch office), or by posting the same to such registered office in a duly registered letter addressed to the secretary of the union. Deeds and instruments to be executed by an industrial union for the purposes of the act must be made and executed under the seal of the union and the hand of the chairman or secretary thereof, or in such other manner as the rules of the union prescribe. An industrial union can, at any time, apply to the registrar in the prescribed manner for a cancellation of the registration thereof under the following provisions: The registrar, after giving six weeks' public notice of his intention to do so, must, by notice in the Gazette, cancel such registration; provided that in no case shall the registration be canceled during the progress of any conciliation or arbitration proceedings affecting such union until the board or court has given its decision or made its award, nor unless the registrar is satisfied that the cancellation is desired by a majority of the members of the union. The effect of the cancellation is to dissolve the incorporation of the union; but in no case does or can the cancellation or dissolution relieve the industrial union, or any member thereof, from obligation of any industrial agreement or award or order of the court, or from any penalty or liability incurred prior to such cancellation.

INDUSTRIAL ASSOCIATIONS.

Any council or other body, however designated, representing not less than two industrial unions of the one industry of either employers or workers, must be registered as an industrial association of employers or workers under the act. All the provisions of the act relating to industrial unions, their officers and members, must, mutatis mutandis, extend and apply to an industrial association, its officers and members, and these provisions must be read and construed accordingly, in so far as the same are applicable; provided that an industrial association shall not be entitled to nominate or vote for the election of members of a board or to recommend the appointment of a member of the court.

INDUSTRIAL DISPUTES IN RELATED TRADES.

The law prescribes:

An industrial dispute can relate either to the industry in which the party by whom the dispute is referred for settlement to a board or the court is engaged or concerned, or to any industry related thereto. An industry can be deemed to be related to another where both of them are branches of the same trade, or are so connected that industrial matters relating to the one may affect the other; thus, bricklaying, masonry, carpentering, and painting are related industries, being all branches of the building trade, or being so connected as that the conditions of employment or other industrial matters relating to one of them may affect the others. The governor can, from time to time, by notice in the Gazette, declare any specified industries to be related to one another, and such industries shall be deemed to be related accordingly. The court has also, in any industrial dispute, jurisdiction to declare industries to be related to one another. Where an industrial union of workers is party to an industrial dispute, the jurisdiction of the board or court to deal with the dispute shall not be affected by the reason merely that no member of the union is employed by any party to the dispute or is personally concerned in the dispute.

INDUSTRIAL AGREEMENTS.

The parties to industrial agreements under the act must in every case be industrial unions or industrial associations or employers; and any such agreement must provide for any matter or thing affecting any industrial matter or in relation thereto, or for the prevention or settlement of any industrial dispute. Every industrial agreement must be for a term to be specified therein, not exceeding three years from the date of the making thereof, and must commence as follows: "This industrial agreement, made in pursuance of 'the industrial conciliation and arbitration act, 1900,' this —— day of ——— between ——— and ———," and then the matters agreed upon must be set out. The date of making the industrial agreement must be the date on which it is executed by the party who first executes it; and such date, and the names of all the original parties thereto, must be truly stated therein. Notwithstanding the expiry of the term of the industrial agreement, it must continue in force until superseded by another industrial agreement or by an award of the court, except where, subject to the provisions of subsection 2 of section 20, the registration of an industrial union of workers bound by such agreement has been canceled. A duplicate original of every industrial agreement must, within thirty days after the making thereof, be filed in the office of the clerk of the industrial district where the agreement is made. At any time while the industrial agreement is in force any industrial union or industrial association or employer can become party thereto by filing in the office wherein such agreement is filed a notice in the prescribed form, signifying concurrence with such agreement. Every industrial agreement duly made, executed, and filed becomes binding on the parties thereto, and also on every member of any industrial union or industrial association which is party thereto. Every industrial agreement, whether made under the act or under any act repealed by the act, can be varied, renewed, or canceled by any subsequent industrial agreement made by and between all the parties thereto, but so that no party shall be deprived of the benefit thereof by any subsequent industrial agreement to which he is not a party. Industrial agreements must be enforced in the manner provided by section 94 of the act, and not otherwise.

CONCILIATION AND ARBITRATION.

The following provisions apply:

The governor can from time to time, by notice in the Gazette, constitute and divide New Zealand or any portion thereof into such industrial districts, with such names and boundaries, as he thinks fit. All industrial districts constituted under any act repealed by the act and existing at the time of such repeal are deemed to be constituted under the act. If any industrial district is constituted by reference to the limits or boundaries of any other portion of the colony defined or created under any act, then, in case of the alteration of such limits or boundaries, such alteration takes effect in respect of the district constituted under the act without any further proceeding, unless the governor otherwise determines. In and for every industrial district, the governor must appoint a clerk of awards (elsewhere in the act referred to as "the clerk"), who shall be paid such salary or other remuneration as the governor thinks fit, and shall be subject to the control and direction of the registrar. Every clerk appointed under any act repealed by the act and in office at the time of such repeal shall be deemed to be appointed under the act. The office of clerk may be held either separately or in conjunction with any other office in the public service, and in the latter case the clerk may, if the governor thinks fit, be appointed not by name, but by reference to such other office, whereupon the person who for the time being holds such office or performs its duties shall, by virtue thereof, be the clerk. It is the duty of the clerk to receive, register, and deal with all applications within his district lodged for reference of any industrial dispute to the board or to the court; to convene the board for the purpose of dealing with any such dispute; to keep a register, in which shall be entered the particulars of all references and settlements of industrial disputes made to and by the board, and of all references, awards, and orders made to and by the court; to forward from time to time to the registrar copies of or abstracts from the register; to issue all summonses to witnesses to give evidence before the board or court, and to issue all notices and perform all such other acts in connection with the sittings of the board or court as are prescribed, or as the court, the board, or the registrar directs; and generally to do all such things and take all such proceedings as are prescribed by the act or the regulations thereunder, or as the court, the board, or the registrar directs.

BOARDS OF CONCILIATION.

In every industrial district there must be established a board of conciliation, which shall have jurisdiction for the settlement of any industrial dispute which arises in such district and is referred to the board under the provisions in that behalf hereinafter contained. The board of each industrial district consists of such an unequal number of persons as the governor may determine, being not more than five, one of whom (being the chairman) shall be elected by the other members in the manner hereinafter provided, and the other members must be elected by the respective industrial unions of employers and of workers in the industrial district, such unions voting separately and electing an equal number of such members; provided that an industrial union shall not be entitled to vote unless its registered office has been recorded as aforesaid for at least three months next preceding the date fixed for the election. The ordinary term of office of the members of the board is three years from the date of the election of the board, or until their successors are elected, as hereinafter provided; but they are eligible for reelection. The law further prescribes:

Every board established under any act repealed by the act, and existing at the time of such repeal, must be deemed to be established under the act, and the members thereof who are then in office so continue until the expiry of their ordinary term of office under such repealed act or until their successors are elected under the act, but they are eligible for reelection. With respect to the ordinary election of members of the board (other than the chairman), the following provisions apply: The clerk must act as returning officer, and must do all things necessary for the proper conduct of the election. The first ordinary election must be held within not less than twenty nor more than thirty days after the constitution of the district, in the case of districts hereafter constituted, and before the expiry of the current ordinary term of office in the case of existing boards. Each subsequent ordinary election must in every case be held within not less than twenty nor more than thirty days before the expiry of the current ordinary term of office. The governor can, from time to time, extend the period within which any election shall be held for such time as he thinks fit. The returning officer shall give fourteen days' notice, in one or more newspapers circulating in the district, of the day and place of election. For the purposes of each election, the registrar shall compile and supply to the returning officer a roll, setting forth the name of every industrial union entitled to vote, and every such union—but no other—is entitled to vote accordingly. The roll must be supplied as aforesaid not less than fourteen days before the day fixed for the election, and must be open for free public inspection at the office of the clerk during office hours from the day on which it is received by the clerk until the day of election. Persons must be nominated for election in such manner as the rules of the nominating industrial union prescribe, or, if there is no such rule, nominations must be made in writing under the seal of the union and the hand of its chairman or secretary.

An industrial union not entitled to vote shall not be entitled to nominate. Each nomination must be lodged with the returning officer not later than 5 o'clock in the afternoon of the fourth day before the day of the election, and must be accompanied by the written consent of the person nominated. Forms of nomination must be provided by the returning officer on application to him for that purpose. The returning officer shall give notice of the names of all persons validly nominated by affixing a list thereof on the outside of the door of his office during the three days next preceding the day of the election. If it appears that the number of persons validly nominated does not exceed the number to be elected, the returning officer must at once declare such persons elected. If the number of persons validly nominated exceeds the number to be elected, then votes must be taken as hereinafter provided. The vote of each industrial union entitled to vote must be signified by voting paper under the seal of the union and the hand of the chairman and secretary. The voting paper must be lodged with or transmitted by post or otherwise to the returning officer at his office, so as to reach his office not later than 5 o'clock in the afternoon of the day of the election; and the returning officer must record the same in such manner as he thinks fit. Every voting paper with respect to which the foregoing requirements of this section are not duly complied with must be deemed to be informal. Each industrial union must have as many votes as there are persons to be elected by its division. Such votes may be cumulative, and the persons, not exceeding the number to be elected, having the highest aggregate number of valid votes in each division must be deemed elected. In any case where two or more candidates in the same division have an equal number of valid votes, the returning officer, in order to complete the election, must give a casting vote. As soon as possible after the votes of each division of the industrial unions have been recorded, the returning officer must reject all informal votes and ascertain what persons have been elected as before provided, and must state the result in writing and forthwith affix a notice thereof on the door of his office. If any question or dispute arises touching the right of any industrial union to vote, or the validity of any nomination or vote, or the mode of election or the result thereof, or any matter incidentally arising in or in respect of such election, the same must in the prescribed manner be referred to the returning officer at any time before the gazetting of the notice of the election of members of the board, as hereinafter provided, and the decision of the returning officer is final. Except as aforesaid, no such question or dispute can be raised or entertained. In case any election is not completed on the day appointed, the returning officer can adjourn the election, or the completion thereof, to the next day or any subsequent day, and may then proceed with the election.

The whole of the voting papers used at the election must be securely kept by the returning officer during the election, and thereafter must be put in a packet and kept until the gazetting of the notice last aforesaid, when he must cause the whole of them to be effectually destroyed. Neither the returning officer nor any person employed by him can at any time (except in discharge of his duty or in obedience to the process of a court of law) disclose for whom any vote has been tendered, or retain possession of or exhibit any voting paper used at the election, or give to any person any information on any of the matters herein mentioned. If any person commits any breach of the last preceding subsection hereof, he is liable to a penalty not exceeding £20 ($97). As soon as practicable after the election of the members of the board, the clerk must appoint a time and place for the elected members to meet for the purpose of electing a chairman, and must give to each such member at least three days' written notice of the time and place so appointed. At such meeting the members must, by a majority of the votes of the members present, elect some impartial person—not one of their number—to be chairman of the board. As soon as practicable after the election of the chairman, the clerk must transmit to the registrar a list of the names of the respective persons elected as members and as chairman of the board, and the governor must cause notice thereof to be gazetted. Such notice shall be final and conclusive for all purposes, and the date of gazetting of such notice must be deemed to be the date of the election of the board. Any member of the board may resign by letter to the registrar, and the registrar must thereupon report the matter to the clerk. If the chairman or any member of the board dies, or resigns, or becomes disqualified from acting under section 97 hereof, or is proved to be guilty of inciting any industrial union or employer to commit any breach of an industrial agreement or award, or is absent during four consecutive sittings of the board, his office thereby becomes vacant, and the vacancy thereby caused is deemed to be a casual vacancy.

Every casual vacancy must be filled by the same electing authority, and, as far as practicable, in the same manner and subject to the same provisions as in the case of the vacating member. Upon any casual vacancy being reported to the clerk, he must take all such proceedings as may be necessary in order that the vacancy may be duly supplied by a fresh election; provided that the person elected to supply the vacancy shall hold office only for the residue of the term of the vacating member. If any person being a member of one board allows himself to be nominated for election as a member of another board, his nomination shall be void, and if he is so elected his election is void. In any case where the registrar is satisfied that for any reason the proper electing authority has failed or neglected to duly elect a chairman or other member of the board, or that his election is void, the governor must, by notice in the Gazette, appoint a fit person to be chairman or other member, and, for the purposes of this act, every chairman or other member so appointed is deemed to be elected, and must hold office for the unexpired residue of the ordinary term of office.

The presence of the chairman and of not less than one-half in number of the other members of the board, including one of each side, is necessary to constitute a quorum at every meeting of the board subsequent to the election of the chairman; provided that in the case of the illness or absence of the chairman, the other members can elect one of their own number to be chairman during such illness or absence. In all matters coming before the board, the decision of the board is determined by a majority of the votes of the members present, exclusive of the chairman, except in the case of an equality of such votes, in which case the chairman has a casting vote. The board can act notwithstanding any vacancy in its body, and in no case must any act of the board be questioned on the ground of any informality in the election of a member, or on the ground that the seat of any member is vacant, or that any supposed member is incapable of being a member. In any case where the ordinary term of office expires, or is likely to expire, while the board is engaged in the investigation of any industrial dispute, the governor can, by notice in the Gazette, extend such term for any time not exceeding one month, in order to enable the board to dispose of such dispute, but for no other purpose; provided that all proceedings for the election of the board's successors must be taken in like manner in all respects as if such term were not extended, and also that any member of the board whose term is extended must be eligible for nomination and election to the new board.

SPECIAL BOARDS OF CONCILIATORS.

In any part of the colony, whether included in a district or not, and whether a board of conciliation has been duly constituted or not, a special board of conciliators can, on the application of all parties and in the prescribed manner, be constituted from time to time to meet any case of emergency or any special case of industrial dispute. All the provisions of the act relating to a board of conciliation—its constitution, election, jurisdiction, and powers—must, mutatis mutandis, apply to a special board of conciliators, subject to the following modifications:

1. The returning officer must be appointed by the governor.
2. The members of the special board, who must be experts in the particular trade under dispute (other than the chairman), must, in the prescribed manner, be elected in equal numbers by the employers and industrial unions of employers directly interested in the dispute, and by the industrial unions of workers so interested.
3. All or any of the members of the special board can be members of an existing board of conciliation.
4. The members of the special board must in each case vacate their office on the settlement of dispute.

FUNCTION AND PROCEDURE OF CONCILIATION BOARDS.

Any industrial dispute can be referred for settlement to a board by application in that behalf made by any party thereto, and with respect to such application and reference the following provisions apply:

1. The application shall be in the prescribed form, and must be filed in the office of the clerk for the industrial district wherein the dispute arose.
2. If the application is made pursuant to an industrial agreement, it must specify such agreement by reference to its dates and parties and the date and place of the filing thereof.
3. The parties to such dispute must in every case be industrial unions or industrial associations or employers; but the mention of the various kinds of parties must not be deemed to interfere with any arrangement thereof that may be necessary to insure the industrial dispute being brought in a complete shape before the board; and a party can be withdrawn or removed or joined at any time before the final report or recommendation of the board is made, and the board can make any recommendation or give any direction for any such purpose accordingly. As soon as practicable after the filing of the application, the clerk must lay the same before the board, at a meeting thereof to be convened in the prescribed manner. An employer, being a party to the reference, must appear in person or by his agent, duly appointed in writing for that purpose, or by counsel or solicitor. An industrial union or association, being a party to the reference, must appear by its chairman or secretary, or by any number of persons (not exceeding three) appointed in writing by the chairman, or in such other manner as the rules prescribe, or by counsel or solicitor.

Except where hereinafter specially provided, every party appearing by a representative must be bound by the acts of such representative. No counsel or solicitor shall be allowed to appear or be heard before a board, or any committee thereof, unless all the parties to the reference expressly consent thereto. In every case where an industrial dispute is duly referred to a board for settlement, the following provisions apply:

The board must, in such manner as it thinks fit, carefully and expeditiously inquire into the dispute and all matters affecting the merits thereof and the right settlement thereof. For the purposes of such inquiry, the board has all the powers of summoning witnesses, administering oaths, compelling, hearing, and receiving evidence, and preserving order which are by this act conferred on the court, save and except the production of books. In the course of such inquiry, the board must make all such suggestions and do all such things as it deems right and proper for inducing the parties to come to a fair and amicable settlement of the dispute, and can adjourn the proceedings for any period the board thinks reasonable to allow the parties to agree upon some terms of settlement. The board can also, upon such terms as it thinks fit, refer the dispute to a committee of its members, consisting of an equal number of the representatives of employers and workers, in order that such committee may facilitate and promote an amicable settlement of the dispute. If a settlement of the dispute is arrived at by the parties, it must be set forth in an industrial agreement, which must be duly executed by all the parties or their attorneys, but not by their representatives, and a duplicate original whereof must be filed in the office of the clerk within such time as is named by the board in that behalf. If such industrial agreement is duly executed and filed as aforesaid, the board must report to the clerk of awards that the dispute has been settled by industrial agreement. If such industrial agreement is not duly executed and filed as aforesaid, the board must make such recommendation for the settlement of the dispute, according to the merits and substantial justice of the case, as the board thinks fit. The board's recommendation must deal with each item of the dispute, and must state in plain terms, avoiding as far as possible all technicalities, what, in the board's opinion, should or should not be done by the respective parties concerned. The board's recommendation must also state the period during which the proposed settlement should continue in force, being in no case less than six months nor more than three years, and also the date from which it should commence, being not sooner than one month nor later than three months after the date of the recommendation. The board's report or recommendation must be in writing, under the hand of the chairman, and must be delivered by him to the clerk within two months after the day on which the application for the reference was filed, or within such extended period, not exceeding one additional month, as the board thinks fit. Before entering upon the exercise of the functions of their office, the members of the board must make oath or affirmation before a judge of the supreme court that they will faithfully and impartially perform the duties of their office, and that also, except in the discharge of their duties, they will not disclose to any person any evidence or other matter brought before the board.

Upon receipt of the board's report or recommendation, the clerk must (without fee) file the same and allow all the parties to have free access thereto for the purpose of considering the same and taking copies thereof, and shall, upon application, supply certified copies for a prescribed fee.

If all or any of the parties to the reference are willing to accept the board's recommendation, either as a whole or with modifications, they can, at any time before the dispute is referred to the court, either execute and file an industrial agreement in settlement of the dispute, or file in the office of the clerk a memorandum of settlement. With respect to such memorandum of settlement, the following provisions apply:

It must be in the prescribed form, and shall be executed by all or any of the parties or their attorneys (but not by their representatives). It must state whether the board's recommendation is accepted as a whole or with modifications, and in the latter case the modifications must be clearly and specifically set forth therein. Upon the memorandum of settlement being duly executed and filed, the board's recommendation must, with the modifications (if any) set forth in such memorandum, operate and be enforceable in the same manner in all respects as an industrial agreement duly executed and filed by the parties. At any time before the board's recommendation is filed, all or any of the parties to the reference may, by memorandum of consent in the prescribed form, executed by themselves or their attorneys (but not by their representatives), and filed in the office of the clerk, agree to accept the recommendation of the board; and in such case the board's recommendation, when filed, shall operate and be enforceable in the same manner in all respects as an industrial agreement duly executed and filed by the parties.

With respect to every industrial dispute which, having been duly referred to the board, is not settled under the provisions for settlement hereinbefore contained, the following special provisions apply:

At any time within one month after the filing of the board's recommendation, any of the parties can, by application in the prescribed form filed in the office of the clerk, refer such dispute to the court for settlement, and thereupon such dispute is deemed to be before the court. If at the expiration of such month no such application has been duly filed, then on and from the date of such expiration the board's recommendation shall operate and be enforceable in the same manner in all respects as an industrial agreement duly executed and filed by the parties.

THE COURT OF ARBITRATION.

There is one court of arbitration, called "the court," for the whole colony for the settlement of industrial disputes pursuant to the act. The court must have a seal which is judicially noticed in all courts of judicature and for all purposes. The court consists of three members, who are appointed by the governor—one on the recommendation of the industrial unions of employers, one on the recommendation of the industrial unions of workers; the third is a judge of the supreme court, who is president of the court. In case of the illness or unavoidable absence of the president at any time, the governor appoints another judge of the supreme court to act as president. For the purposes of the appointment of the members of the court (other than the president) the following provisions apply:

Each industrial union must, within one month after being requested so to do by the governor, recommend the name of one person to the governor, and from the names so recommended the governor must select two members—one from the persons recommended by the unions of employers and one from the persons recommended by the unions of workers—and appoint them to be members of the court. The recommendation must, in each case, be made in the name and under the seal of the union, by the committee of management or other governing authority thereof, however designated. If either of the divisions of unions fails or neglects to duly make any recommendation within the aforesaid period, the governor must, as soon thereafter as may be convenient, appoint a fit person to be a member of the court; and such member must be deemed to be appointed on the recommendation of the said division of unions. As soon as practicable after a full court has been appointed by the governor, the names of the members of the court must be notified in the Gazette. Every member of the court holds office for three years from the date of the gazetting of his appointment, or until the appointment of his successor, and is eligible for reappointment. If any member of the court resigns by letter to the governor, or, in the case of the president, if he ceases to be a judge of the supreme court, his office as member or president of the court becomes vacant, and the vacancy is deemed to be a casual vacancy. The governor can remove any member of the court from office who becomes disqualified from acting under section 97 hereof, or is proved to be guilty of inciting any industrial union or employer to commit any breach of an industrial agreement or award, or is absent from four consecutive sittings of the court; and every vacancy thereby caused is deemed to be a casual vacancy. Every casual vacancy in the membership of the court can be supplied in the same manner as in the case of the original appointment; but every person appointed to fill a casual vacancy can hold office only for the residue of the term of his predecessor.

Before entering on the exercise of the functions of their office, the members of the court, other than the president, must make oath or affirmation before the president that they will faithfully and impartially perform the duties of their office, and also that, except in the discharge of their duties, they will not disclose to any person any evidence or other matter brought before the court. The governor can also from time to time appoint such clerks and other officers of the court as he thinks necessary, and they hold office during pleasure and receive such salary or remuneration as the governor thinks fit.

JURISDICTION AND PROCEDURE OF THE COURT.

The court has jurisdiction for the settlement and determination of any industrial dispute referred to it under the provisions of the act. Forthwith, after any dispute has been duly referred to the court for settlement, the clerk must notify the fact to the president. Subject to provisions hereinafter mentioned as to the joining or striking out of parties, the parties to the proceedings before the court must be the same as in the proceedings before the board, and the provisions hereinbefore contained as to the appearance of parties before a board must apply to proceedings before the court. With respect to the sittings of the court, the following provisions apply:

The sittings of the court must be held at such time and place as are from time to time fixed by the president. The sittings may be fixed either for a particular case or generally for all cases then before the court and ripe for hearing, and it shall be the duty of the clerk to give to each member of the court, and also to all parties concerned, at least three clear days' previous notice of the time and place of each sitting. The court may be adjourned from time to time and from place to place in manner following; that is to say:

By the court or the president at any sitting thereof, or, if the president is absent from such sitting, then by any other member present, or, if no member is present, then by the clerk, and by the president at any time before the time fixed for the sitting; and in such case the court shall notify the members of the court and all parties concerned.

Any party to the proceedings before the court must appear personally or by agent, or, with the consent of all the parties, by counsel or solicitor, and may produce before the court such witnesses, books, and documents as such party thinks proper. The court in all matters before it has full and exclusive jurisdiction to determine the same in such manner in all respects as in equity and good conscience it thinks fit. With respect to evidence in proceedings before the court, the following provisions apply:

Formal matters which have been proved or admitted before the board need not be again proved or admitted before the court, but are deemed to be proved. On the application of any of the parties, and on payment of the prescribed fee, the clerk shall issue a summons to any person to appear and give evidence before the court. The summons shall be in the prescribed form, and may require such person to produce before the court any books, papers, or other documents in his possession or under his control in any way relating to the proceedings. All books, papers, and other documents produced before the court, whether produced voluntarily or pursuant to summons, may be inspected by the court and also by such of the parties as the court allows; but the information obtained therefrom shall not be made public, and such parts of the documents as, in the opinion of the court, do not relate to the matter at issue may be sealed up. Every person who is summoned and duly attends as a witness shall be entitled to an allowance for expenses, according to the scale for the time being in force with respect to witnesses in civil suits under the magistrates' courts act, 1893.

If any person who has been duly served with such summons, and to whom at the same time payment or tender has been made of his reasonable traveling expenses according to the aforesaid scale, fails to duly attend or to duly produce any book, paper, or document as required by his summons, he commits an offense and is liable to a penalty not exceeding £20 ($97), or to imprisonment for any term not exceeding one month, unless he shows that there was good and sufficient cause for such failure. For the purpose of obtaining the evidence of witnesses at a distance, the court or, while the court is not sitting, the president shall have all the powers and functions of a stipendiary magistrate under the magistrates' courts act, 1893, and the provisions of that act relative to the taking of evidence at a distance shall, mutatis mutandis, apply in like manner as if the court were a magistrate's court. The court may take evidence on oath, and for that purpose any member or the clerk may administer an oath. On any indictment for perjury, it shall be sufficient to prove that the oath was administered as aforesaid. The court may accept, admit, and call for such evidence as in equity and good conscience it thinks fit, whether strictly legal evidence or not. Any party to the proceedings shall be competent and may be compelled to give evidence as a witness. The court in its discretion may order that all or any part of its proceedings may be taken down in shorthand.

The presence of the president and at least one other member is necessary to constitute a sitting of the court. The decision of a majority of the members present at the sitting of the court, or, if the members present are equally divided in opinion, then the decision of the president is the decision of the court. The decision of the court must in every case be signed by the president and must be delivered by him or by any other member of the court, or by the registrar. The court can refer any matters before it to a board for investigation and report, and in such case the award of the court can, if the court thinks fit, be based on the report of the board. The court can, at any time, dismiss any matter referred to it which it thinks frivolous or trivial, and in such case the award can be limited to an order upon the party bringing the matter before the court for payment of costs of bringing same. The court, in its award, can order any party to pay to the other party such costs and expenses (including expenses of witnesses) as it deems reasonable, and can apportion such costs between the parties or any of them as it thinks fit, and can at any time vary or alter any such order in such manner as it thinks reasonable; provided that in no case shall costs be allowed on account of agents, solicitors, or counsel. The award of the court on any reference must be made within one month after the court began to sit for the hearing of the reference, or within such extended time as in special circumstances the court thinks fit. The award must be signed by the president and have the seal of the court attached thereto, and be deposited in the office of the clerk of the district where the reference arose, and be open to inspection without charge during office hours by all persons interested therein. The clerk must, upon application, supply certified copies of the award for a prescribed fee. The award must be framed in such a manner as shall best express the decision of the court, avoiding all technicality where possible, and shall specify—

Each original party on whom the award is binding, being in every case each industrial union, industrial association, or employer who is party to the proceedings at the time when the award is made; the industry to which the award applies; the industrial district to which the award relates, being in every case the industrial district in which the proceedings were commenced; the currency of the award, being any specified period not exceeding three years from the date of the award; provided that notwithstanding the expiration of the currency of the award, the award shall continue in force until a new award has been duly made, except where, subject to the provisions of subsection 2 of section 20, the registration of an industrial union of workers bound by such award has been canceled.

The award shall also state in clear terms what is, or is not, to be done by each party on whom the award is binding, or by the workers affected by the award, and may provide for an alternative course to be taken by any party; provided that in no case shall the court have power to fix any age for the commencement or termination of apprenticeship. The award, by force of the act, must extend to and bind as subsequent party thereto every industrial union, industrial association, or employer who, not being original party thereto, is at any time while the award is in force connected with or engaged in the industry to which the award applies within the industrial district to which the award relates.

With respect to every award, whether made before or after the commencement of the act, the following special powers are exercisable by the court by order at any time during the currency of the award:

Power to amend the provisions of the award for the purpose of remedying any defect therein or of giving fuller effect thereto. Power to extend the award so as to join and bind as party thereto any specified industrial association or employer in the colony not then bound thereby or party thereto, but connected with or engaged in the same industry as that to which the award applies; provided that the court shall not act under this subsection except where the award relates to a trade or manufacture the products of which enter into competition in any market with those manufactured in another industrial district, and a majority of the employers engaged, and of the unions of workers concerned in the trade or manufacture are bound by the award; provided further that, in case of an objection being lodged to any such award by a union of employers or employees in a district other than that in which the award was made, the court must sit for the hearing of the said objection in the district from which it comes, and may amend or extend the award as it thinks fit.

The award must also extend to and bind every worker who, not being a member of any industrial union on which the award is binding, is at any time while it is in force employed by any employer on whom the award is binding; and if any such worker commits any breach of the award, he is liable to a penalty not exceeding £10 ($48), to be recovered in like manner as if he were a party to the award. The powers of the last preceding section hereof conferred upon the court may be exercised on the application of any party bound by the award. At least thirty days' notice of the application must be served on all other parties, including every industrial union, industrial association, or employer to whom it is desired that the award should be extended. The application can be made by either party to the court direct, without previous reference to the board.

In legal and other proceedings, it is sufficient to produce the award with the seal of the court. Proceedings in the court can not be impeached for want of form, nor be removable to any court by certiorari or otherwise; and no award, order, or proceeding of the court is liable to be challenged, appealed against, reviewed, quashed, or called in question by any court of judicature on any account whatsoever. The court in its award, or by order made on the application of any of the parties at any time while the award is in force, can fix and determine what shall constitute a breach of the award, and what sum, not exceeding £500 ($2,430), shall be the maximum penalty payable by any party in respect of any breach. The court in its award, or by order made on the application of any of the parties at any time while the award is in force, can prescribe a minimum rate of wages or other remuneration, with special provision for a lower rate being fixed in the case of any worker who is unable to earn the prescribed minimum; provided that such lower rate shall in every case be fixed by such tribunal, in such manner and subject to provisions specified in the award or order. In every case where the court in its award or other order directs the payment of costs or expenses, it can fix the amount thereof and specify the parties by and to whom the same shall be paid. For the purpose of enforcing any award or order of the court, whether made before or after the commencement of the act (but not being in order under section 96 hereof), the following provisions apply:

In so far as the award itself imposes a penalty or costs, it shall be deemed to be an order of the court, and payment shall be enforceable accordingly under the subsequent provisions of this section relating to orders of the court. If any party on whom the award is binding commits any breach thereof by act or default, then, subject to the provisions of the last preceding subsection hereof, the registrar or any party to the award may, by application in the prescribed form, apply to the court for the enforcement of the award. On the hearing of such application, the court may by order either dismiss the application or impose such penalty for the breach of the award as it deems just, and in either case with or without costs; provided that in no case shall costs be given against the registrar. If the order imposes a penalty or costs, it shall specify the parties liable to pay the same and the parties or persons to whom the same are payable; provided that the aggregate amount of penalties payable under any award or order of the court shall not exceed £500 ($2,430). For the purposes of enforcing payment of a penalty and costs payable under any order of the court, a certificate in the prescribed form, under the hand of the clerk and the seal of the court, specifying the amount payable and the respective parties or persons by and to whom the same is payable, may be filed in any court having civil jurisdiction to the extent of such amount, and shall thereupon, according to its tenor, be enforceable in all respects as a final judgment of such court in its civil jurisdiction; provided that, for the purpose of enforcing satisfaction of such judgment, where there are two or more judgment creditors thereunder, process may be issued separately by each judgment creditor against the property of his judgment debtor in like manner as in the case of a separate and distinct judgment. All property belonging to the judgment debtor (including therein, in the case of an industrial union or industrial association, all property held by trustees for the judgment debtor) shall be available in or toward satisfaction of the judgment debt, and if the judgment debtor is an industrial union or an industrial association, and its property is insufficient to fully satisfy the judgment debt, its members shall be liable for the deficiency; provided that no member shall be liable for more than £10 ($48) under this subsection. For the purpose of giving full effect to the last preceding subsection hereof, the court or the president thereof may, on the application of the judgment creditor, make such order or give such directions as are deemed necessary, and the trustees, the judgment debtor, and all other persons concerned shall obey the same.

For the purpose of enforcing industrial agreements, whether made before or after the commencement of the act, the provisions of the section, mutatis mutandis, apply in like manner as if an industrial agreement were an award of the court, and the court has accordingly full jurisdiction to deal therewith. The court has full and exclusive jurisdiction to deal with all offenses under either subsection 6 of section 77, section 100, section 103, section 104, or section 108 hereof, and for that purpose the following provisions apply:

Proceedings to recover the penalty of the act imposed in respect of any such offense shall be taken in the court in a summary way under the provisions of the justices of the peace act, 1882, and those provisions shall, mutatis mutandis, apply in like manner as if the court were a court of justices exercising summary jurisdiction under that act; provided that in the case of an offense under section 100 of the act (relating to contempt of court), the court, if it thinks fits so to do, may deal with it forthwith without the necessity of an information being taken or a summons being issued. For the purpose of enforcing any order of the court made under this section, a duplicate thereof shall, by the clerk of awards, be filed in the nearest office of the magistrate's court, and shall thereupon, according to its tenor, be enforced in all respects as a final judgment, conviction, or order duly made by a stipendiary magistrate under the summary provisions of the justices of the peace act, 1882. The provisions of sections 89 and 90 hereof shall, mutatis mutandis, apply to all proceedings and orders of the court under this section. All penalties recovered under this section shall be paid into the public account and form part of the consolidated fund.

GENERAL PROVISIONS AS TO BOARD AND COURT.

The following persons are disqualified from being appointed or elected or from holding office as chairman or as member of any board or a member of the court, and if so elected or appointed are incapable of continuing to be such member or chairman:

1. A bankrupt who has not obtained his final order of discharge.
2. Any person convicted of any crime for which the punishment is imprisonment with hard labor for a term of six months or upward.
3. Any person of unsound mind.
4. An alien.

An industrial dispute can not be referred for settlement to a board by an industrial union or association, nor can any application be made to the court by any such union or association for the enforcement of any industrial agreement or award or order of the court, unless and until the proposed reference or application has been approved by the members in the manner following:

In the case of an industrial union, by resolution passed at a special meeting of the union and confirmed by subsequent ballot of the members, a majority of the votes recorded being in favor thereof, the result of such ballot to be recorded on the minutes; and in the case of an industrial association, by resolution passed at a special meeting of the members of the governing body of the association, and confirmed at special meetings of a majority of the unions represented by the association. Each special meeting can be duly constituted, convened, and held in manner provided by the rules, save that notice of the proposal to be submitted to the meeting must be posted to all the members, and that the proposal is deemed to be carried if, but not unless, a majority of all the members of the industrial union or of the governing body of the industrial associations vote in favor of it. A certificate under the hand of the chairman of any such special meeting is, until the contrary is shown, sufficient evidence as to the due constitution and holding of the meeting, the nature of the proposal submitted, and the result of the voting. In every case where an industrial dispute has been referred to a board the following special provisions apply:

Until the dispute has been finally disposed of by the board or the court, neither the parties to the dispute nor the workers affected by the dispute shall, on account of the dispute, do or be concerned in doing, directly or indirectly, anything in the nature of a strike or lockout, or of a suspension or discontinuance of employment or work, but the relationship of employer and employed shall continue uninterrupted by the dispute or anything arising out of the dispute. If default is made in faithfully observing any of the foregoing provisions of this section, every union, association, employer, worker, or person committing or concerned in committing the default shall be liable to a penalty not exceeding £50 ($243).

Whenever an industrial dispute involving technical questions is referred to a board or court, the following special provisions apply:

At any stage of the proceedings, the board or the court may direct that two experts nominated by the parties shall sit as experts. One of the experts shall be nominated by the party or, as the case may be, by all the parties whose interests are with the employers, and one by the party or, as the case may be, by all the parties whose interests are with the workers. The experts shall be nominated in such manner as the board or court directs, or as is prescribed by regulations, but shall not be deemed to be members of the board or court for the purpose of disposing of such dispute. The powers by this section conferred upon the board and the court, respectively, shall, while the board or the court is not sitting, be exercisable by the chairman of the board and the president of the court, respectively.

In order to enable the board or court the more effectually to dispose of any matter before it according to the substantial merits and equities of the case, it can at any stage of the proceedings, of its own motion or on the application of any of the parties and upon such terms as it thinks fit, by order (*a*) direct parties to be joined or struck out, (*b*) amend or waive any error or defect in the proceedings, (*c*) extend the time within which anything is to be done by any party, and (*d*) generally give such directions as are deemed necessary or expedient in the premises.

The powers by this section conferred upon the board can, when the board is not sitting, be exercised by the chairman. The powers by this section conferred upon the court are, when the court is not sitting, exercised by the president. If in any proceedings before the board or court any person willfully insults any member of the board or court or the clerk, or willfully interrupts the proceedings, or without good cause refuses to give evidence, or is guilty in any other manner of willful contempt in the face of the board or court, it is lawful for any officer of the board or court, or any member of the police force, to take the person offending into custody and remove him from the precincts of the board or court, to be detained in custody until the rising of the board or court, and the person so offending is liable to a penalty not exceeding £10 ($48). If any person prints or publishes anything calculated to obstruct or in any way interfere with or prejudicially affect any matter before the board or court, he is for every such offense liable to a penalty not exceeding £50 ($243). If, without good cause shown, any party to proceedings before the board or court fails to attend or be represented, the board or court can proceed and act as fully in the matter before it as if such party had duly attended or been represented. Proceedings before the board or court can not abate by reason of the seat of any member of the board or court being vacant for any cause whatever, or of the death of any party to the proceedings; in the latter case, the legal personal representative of the deceased party can be substituted in his stead. A recommendation or order of the board, or an award or order of the court, is not void or in any way vitiated by reason merely of any informality or error of form or noncompliance with the act.

The proceedings of the board or court can be conducted in public; provided that at any stage of the proceedings before it, the board or court, of its own motion, or on the application of any of the parties, can direct that the proceedings be conducted in private, and in such cases all persons (other than the parties, their representatives, the officers of the board or court, and the witnesses under examination) must withdraw. The board or court can sit during the day or at night, as it thinks fit. Any board and the court, and, being authorized in writing by the board or court, any member or officer of such board or court, or any other person, without any other warrant than this act, at any time between sunrise and sunset, can enter upon any manufactory, building, workshop, factory, mine, mine workings, ship or vessel, shed, place, or premises of any kind wherein any industry is carried on, or any work is being done, which is made the subject of a reference to such board or court, can inspect and view the work, material, or appliances, and can interrogate any persons in the building, works, or premises in respect to the matter. Any person who hinders or obstructs the board or court, or any member or officer, in the exercise of any power conferred by this section, or who refuses them entrance to the building, etc., is liable to a penalty not exceeding £50 ($243).

SPECIAL PROVISIONS AS TO GOVERNMENT RAILWAYS.

In respect to the government railways open for traffic, the following special provisions apply:

The society of railway servants called "the Amalgamated Society of Railway Servants," and now registered under the acts repealed by this act, is deemed to be registered under the act. In the case of the dissolution of the said society, any reconstruction thereof, or any society of government railway servants formed in its stead, must register under this act as an industrial union of workers. The minister for railways can, from time to time, enter into industrial agreements with the registered society in like manner in all respects as if the management of the government railways were an industry and he were the employer of all workers employed therein. If any industrial dispute arises between the minister and the society, it is referred to the court for settlement, as hereinafter stated. The society can, by petition filed with the clerk and setting forth the particulars of the matters in dispute, pray the court to hear and determine the same. Such petition must be under the seal of the society and the hands of two members of the committee of management. No such petition can be filed except pursuant to a resolution of a special meeting of the society duly called for the purpose in accordance with its rules, and with respect to such resolution and the procedure thereon sections 98 and 99 apply. Such petition when duly filed must be referred to the court by the clerk, and the court, if it considers the dispute sufficiently grave to call for investigation and settlement, must notify the minister thereof and appoint a time and place at which the dispute can be investigated and determined, in like manner as in the case of a reference, and the court has jurisdiction to hear and determine the same accordingly and to make award thereon. In making any award under this section, the court must have regard to the schedule to the government railways department classification act, 1896. In any proceedings before the court under this section, the minister is represented by any officer of the department whom he appoints in that behalf. All expenses incurred and moneys payable by the minister under this section are payable out of moneys appropriated by parliament for the purpose. In no case does the board have any jurisdiction over the society, nor has the society or any branch thereof any right to nominate or vote for the election of any member of the board. Except for the purposes of this section, the court has no jurisdiction over the society. For the purposes of the appointment of members of the court, the society is deemed to be an industrial union of workers and can make recommendations to the governor accordingly.

MISCELLANEOUS.

Any notification made or purporting to be made in the Gazette under the authority of this act can be given in evidence in all courts of justice and in all legal proceedings by the production of a copy of the Gazette. Every document bearing the seal of the court must be received in evidence without further proof, and the signature of the president of the court, or of the chairman of the board, or of the registrar, or of the clerk of awards is judicially noticed in or before any court or person acting judicially or under any authority contained in this act; provided such signature is attached to some award, order, certificate, or other official document made under this act. No proof is required of the handwriting or official position of any person acting in pursuance of this section. The governor from time to time makes regulations for the following purposes:

Prescribing the forms of certificates or other instruments to be issued by the registrar, and of any certificate of other proceeding of any board, or any officer thereof; prescribing the duties of clerks of awards, and of all other officers and persons acting in the execution of the act; providing for anything necessary to carry out the first or any subsequent election of members of boards, or any vacancy therein, or in the office of the chairman of any board, including the forms of any notice, proceeding, or instrument of any kind to be used in or in respect of any such election; providing for the mode in which recommendations by industrial unions as to the appointment of members of the court shall be made and authenticated; prescribing any act or thing necessary to supplement or render more effectual the provisions of the act as to the conduct of proceedings before a board or the court, or the transfer of such proceedings from one of such bodies to the other; providing generally for any other matter or thing necessary to give effect to this act, or to meet any particular case; prescribing what fees shall be paid in respect of any proceeding before a board or the court, and the party by whom such fees shall be paid; prescribing what respective fees shall be paid to the members of the court (other than the president) and to the members of the board; prescribing what respective traveling expenses shall be payable to the members of the court (including the president), and to the members of the board; and for any purpose for which regulations are contemplated or required in order to give full effect to this act.

All such regulations come into force on the date of the gazetting thereof, and are laid before parliament within fourteen days after such gazetting, if parliament is then in session, or within fourteen days after the beginning of the next session.

All charges and expenses incurred by the government in connection with the administration of this act are defrayed out of such annual appropriations as are from time to time made for that purpose by parliament. No stamp duty is payable in respect of any registration, certificate, agreement, award, statutory declaration, or instrument effected, issued, or made under this act; provided that nothing in this section applies to the fees of any court payable by means of stamps. The acts specified in the schedule hereto have been repealed; provided, nevertheless, as follows:

1. Every person appointed to any office under such repealed acts, and holding office at the time of the repeal, shall be deemed to have been duly appointed under this act.
2. Every union or association registered and incorporated under such repealed acts at the time of the repeal shall be deemed to be registered and incorporated under this act.
3. All registers, records, certificates, awards, industrial agreements, and other official documents existing under such repealed acts at the time of the repeal shall endure and continue for the purposes of this act.
4. All proceedings pending under such repealed acts at the time of the repeal may be continued and completed under this act. Except as provided by section 109 hereof, nothing in this act applies to the Crown, or to any department of the government of New Zealand.

SCHEDULE.

No. 14.—The industrial conciliation and arbitration act, 1894.
No. 30.—The industrial conciliation and arbitration act amendment act, 1895.
No. 57.—The industrial conciliation and arbitration act amendment act, 1896.
No. 40.—The industrial conciliation and arbitration act amendment act, 1898.

FRANK DILLINGHAM,
Consul.

AUCKLAND, *October 15, 1902.*

No 270—03——3

IRRIGATION WORKS OF INDIA.

Irrigation has been common in India since an early period of her history, but the fact that she now possesses the most extensive irrigating system in the world is due to the British Government, which has spent from time to time over $150,000,000 on these works.

The works on the Ganges were opened in 1854 by Lord Dalhousie, then Governor-General of India. Since that date, however, they have been vastly enlarged and improved, and now the total length of the main canals and branches is 1,096 miles and the area irrigated 1,605,740 acres.

The Bari Dooab Canal, 363 miles long, irrigates 777,451 acres. The East Jumna and West Jumna canals, 488 miles long, irrigate 946,220 acres. The Sirhind Canal, 319 miles long, irrigates 782,700 acres. The Sone project, which is only partly completed, extends 367 miles and irrigates 440,796 acres. The Chenab Canal, opened in 1887, when it irrigated only 10,854 acres, now, through a succession of extensions, irrigates 1,500,000 acres, and this area will be increased in the near future to 2,000,000 acres. The total length of its main channel and branches is 429 miles. The Jhelum Canal, recently opened, will irrigate the large tract of arid country lying between the town of that name and the Indus River to the south of the Salt Range. In the Bombay presidency there are several large works which, combined, irrigate 1,968,783 acres.

But the irrigation works in the Madras presidency are on the most colossal scale. They were projected in 1835 by Sir Anthony Cotton, a hydraulic engineer of great ability. His object was to cover all India with a system of canals which would serve both for irrigation and navigation. If this project had been carried out, the material condition of the country would have been transformed. Among Sir Anthony's great works are those on Cavery and Coleroon rivers, in the districts of Trichinopoly, Tanjore, and South Arcot. They include the dam, or anicut, which turns the waters of the Upper Coleroon into the Cavery River on the right and at the same time irrigates abundantly the Trichinopoly district on the left. Among them also is a second and still larger dam, 70 miles lower down the Coleroon, which, again intercepting the water, much of which percolates through the deep sands of the river bed, distributes it bountifully among the southern taluks of South Arcot. The financial success of the Cavery Delta Works, which irrigate 934,123 acres, has been marked. The last official return—1900–1901—gives the earnings on the capital invested as 31 per cent, while the increased value of private property has been equally large. In seasons of scarcity, these districts have not only been free from the horrors of famine, but have also been able to pour large supplies of food into the stricken provinces.

The next great work of Sir Anthony Cotton was the dam across the Godavery River. It is of greater magnitude and presented more engineering difficulties than the dams on the Cavery and Coleroon. The total width of the river at the point where it was decided to build the dam is rather more than 3 miles. Intercepting islands, however, reduce the length of the dam proper to 2½ miles. The profits from these works are less than those returned by the Cavery system, as the cost of keeping up the former is considerably greater; but despite this fact, they yield over 15 per cent on the money invested, irrigate 749,612 acres of land, and have converted a region once among the poorest in India into one of the most prosperous.

The Kistna system, built a few years after the Godavery Dam, irrigates 507,354 acres and yields an interest of 15 per cent on the capital expended.

Farther south, on the border of the Madura district and of the native state of Travancore, there has recently been constructed an irrigation work commonly known as the Periyar project, even more ambitious in design and presenting greater difficulties of execution than any yet undertaken in India. It consists of turning eastward the course of the River Periyar, a large stream rising in the Travancore hills, which, flowing northward, has hitherto fruitlessly poured its fertilizing treasure into the Arabian Sea. Now, by means of a great dam, one of the largest in the world, and a tunnel through the Ghats, 1½ miles in length, it has been compelled to mingle with the Vaiyar River, and the vast volume of water spreads plenty through the land as far as the Bay of Bengal. When fully completed, the works will irrigate at least 150,000 acres, excellent for the cultivation of rice.

There are many other similar works of considerable magnitude; but those I have mentioned will give an idea of the vast scheme of irrigation that is being carried out in India.

Some of the canals designed first for irrigation are now used more or less for navigation and constitute part of the work of the British Government of opening up communication throughout the country.

The nature of the climate and the inequality of the rainfall have led to the practice of irrigation from time immemorial in India. It is absolutely necessary in Sind and the Punjab, and hardly less so in the tract lying between the Aravalla and Chilton hills, in the eastern part of the Bombay presidency; also in the greater part of the Nizam's territory and in some districts in Madras, in Mysore, and in the Carnatic. Irrigation is so essential in the eastern districts of Madras, as well as in central India, that without it a failure of the periodical rains would produce most serious results.

Until the country is covered with canals and provided with tanks for the storage of rain water for irrigation purposes, it will be subject to the ever-recurring visitations of famine, which bring disaster, misery, and death to millions of people.

The irrigation works of India are divided into two main classes—major and minor, the former being subdivided into productive and protective works. The most important are those classed as productive works, or works the cost of which has been wholly sustained by loan funds, in expectation that they would prove directly remunerative and that the net revenue derived from them would fully cover all charges for interest within a reasonable time after their completion.

The protective works are those that have been sanctioned in consideration of their value as famine preventives, without any expectation of their becoming directly remunerative; and the cost of their construction has been met from the famine grant. At present, there are five of these works in operation.

All expenditures incurred in the construction and development of minor irrigation works are met from the revenue of India.

The following statement shows the general result of the irrigation works in British India of which capital and revenue accounts are kept, up to and during the year 1900–1901:

Description.	Capital outlay to end of 1900–1901.	Gross revenue during 1900–1901.	Net revenue during 1900–1901.	Net revenue to capital outlay.	Area irrigated.
Bengal:				*Per cent.*	*Acres.*
Productive	$19,738,397	$560,673	$161,068	0.82	716,271
Protective	50,892	....	....	....	....
Minor works	226,099	214	−369	....	....
Total for Bengal	20,015,388	560,887	160,699	.82	716,271
Bombay:					
Productive	9,916,943	663,972	482,375	4.89	988,335
Protective	2,841,524	49,613	29,746	1.05	57,570
Minor works	3,657,748	48,299	295,209	8.07	922,878
Total for Bombay	16,416,215	761,884	807,330	4.92	1,968,783
Madras:					
Productive	21,816,369	2,598,126	1,975,064	9.3	2,832,717
Protective	1,431,885	29,353	3,502	.23	82,554
Minor works	3,132,662	255,915	162,828	5.2	511,603
Total for Madras	26,380,916	2,883,394	2,041,394	8.09	3,426,874
United Provinces of Agra and Oudh:					
Productive	26,740,349	3,054,561	2,051,132	7.7	1,854,831
Protective	1,437,416	18,119	−11,521	....	33,260
Minor works	950,385	118,534	48,275	5.08	113,793
Total for United Provinces	29,128,150	3,191,214	2,087,886	7.19	2,001,884

Description.	Capital outlay to end of 1900–1901.	Gross revenue during 1900–1901.	Net revenue during 1900–1901.	Net revenue to capital outlay.	Area irrigated.
Punjab:				*Per cent.*	*Acres.*
Productive	$30,378,669	$4,508,520	$3,162,854	10.41	4,190,961
Protective	1,324,441	168,642	137,780	10.4	166,031
Minor works	814,636	302,479	104,640	12.84	602,189
Total for Punjab	32,517,746	4,979,641	3,405,274	10.47	4,959,181
Burma:					
Productive	1,184,915	....	....	....	....
Minor works	1,078,403	317,215	234,196	21.72	434,994
Total for Burma	2,263,318	317,215	234,196	10.35	434,994
Rajputana (minor works)	943,703	29,200	−1,045	....	34,767
Baluchistan (minor works)	516,090	11,272	4,282	.83	5,232
Grand total	128,181,526	12,734,707	8,740,016	6.9	13,547,986

R. F. PATTERSON,
Consul-General.

CALCUTTA, *December 10, 1902.*

FOREST ADMINISTRATION OF BRITISH INDIA.

The following figures, taken from the report of the forest administration of British India for the year 1900–1901, may be worth the attention of the people of the United States who are interested in the preservation of our own forests.

The area of all forest lands under the management of the forest department of India, as shown in statement No. 1, is 208,369 square miles. The total increase over last year is 10,909 square miles, and for this Burma is chiefly responsible. The total expenditure on communications and bridges amounted to 160,000 rupees ($51,000), as against 150,000 rupees ($48,000) in the preceding year.

The total area over which fire protection was attempted rose from 32,787 square miles to 33,906 square miles—an increase of 1,169 square miles. Of the area under protection, 95 per cent was successfully protected, as compared with 93 per cent in the previous year. The average cost of protection rose from 10 rupees ($3.20) to 12 rupees ($3.85) per square mile.

The area closed to grazing in the presidencies of Bengal, Madras, and Bombay shows the following proportions to the total forest area: Bengal, 18 per cent; Madras, 8 per cent; and Bombay, 15 per cent.

The total revenue realized in the Bengal presidency from grazing dues was 535,385 rupees ($171,323), as against 655,226 rupees ($209,673) in the previous year. In Madras, an excess of 24,000 rupees

($7,680) was realized, while Bombay showed a decrease of 58,000 rupees ($18,560), a considerable proportion being remitted on account of the famine in that presidency. The total amount realized in the three presidencies and various provinces from grazing amounted to 1,206,903 rupees ($386,199).

The total outturn of all forests under the control of the forest department in timber and bamboos is shown in statement No. 3. The gross revenue realized was 19,770,493 rupees ($6,326,557), against 19,009,610 rupees ($6,083,975) in the previous year and 18,159,902 rupees ($5,811,168) as an average in the previous five years. The surplus was 8,610.450 rupees ($2,745,344), against 7,984,930 rupees ($2,555,177) in 1899–1900 and 8,498,918 rupees ($2,719,653) in the last quinquennial period.

The revenue and the surplus are thus the highest ever realized.

This report shows something of what is being done for the protection and reproduction of the forests of India, which will become a valuable asset to the country.

R. F. PATTERSON,
Consul-General.

CALCUTTA, *November 26, 1902.*

Statement No. 1.

Province.	Total area.	Forest area.				Proportion of forests to whole area of province.
		Reserved.	Protected.	Unclassed state.	Total.	
	Sq. miles.	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*	*Per cent.*
Bengal	152,090	5,881	3,656	4,033	13,570	8.96
Northwestern Provinces and Oudh	106,774	4,060	30	43	4,123	3.86
Punjab	110,898	2,897	4,888	1,969	9,754	8.8
Burma	162,454	17,837	....	81,562	99,399	61.19
Central Provinces	86,463	18,881	....	138	19,019	21.99
Assam	41,380	3,609	....	17,239	20,848	50.38
Coorg	1,582	238	663	....	901	56.96
Ajmeer	2,646	139	....	10	149	5.62
Baluchistan	....	203	....	....	203	....
Andamans	2,000	156	....	1,795	1,951	97.55
Berar	17,707	3,953	....	....	3,953	22.32
Total Bengal presidency	683,994	57,844	9,237	106,789	173,870	25.42
Total Madras presidency	141,456	16,539	....	2,952	19,541	13.82
Total Bombay presidency	122,898	18,707	1,251	....	14,958	12.17
Grand total 1900–1901.	948,348	88,140	10,488	109,741	208,369	21.97
Grand total 1899–1900.	350,921	86,970	8,089	102,401	197,460	20.71

Statement No. 2.

Province.	Reserved forests.		Protected forests.	
	Total area.	Area closed to all animals.	Total area.	Area closed to all animals.
	Sq. miles.	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*
Bengal	5,881	5,446	3,656	1,923
Northwestern Provinces and Oudh	4,050	1,978	30	...
Punjab	2,897	639	4,888	50
Burma	17,837	14,659	...	...
Central Provinces	18,881	2,214	...	...
Assam	3,609	2,675	...	...
Coorg	238	163	663	...
Ajmeer	139	136½	...	...
Baluchistan	203	150	...	...
Andamans	156	...	...	...
Berar	3,953	1,259	...	...
Total Bengal presidency	57,844	29,319½	9,237	1,973
Total Madras presidency	16,589	1,610	...	...
Total Bombay presidency	13,707	2,222	1,251	...
Grand total	88,140	33,151½	10,488	1,973
Grand total 1899-1900	970	31,653	8,089	1,990

Province.	Unclassed forests.		All classes of forests.	
	Total area.	Area closed to all animals.	Total area.	Area closed to all animals.
	Sq. miles.	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*
Bengal	4,033	...	13,570	7,369
Northwestern Provinces and Oudh	43	1	4,123	1,979
Punjab	1,969	14	9,754	703
Burma	81,562	...	99,399	14,659
Central Provinces	138	...	19,019	2,214
Assam	17,239	...	20,848	2,675
Coorg	...	...	901	163
Ajmeer	10	...	149	136½
Baluchistan	...	...	203	150
Andamans	1,795	...	1,951	...
Berar	...	...	3,953	1,259
Total Bengal presidency	106,789	15	173,870	31,307½
Total Madras presidency	2,952	27	19,541	1,637
Total Bombay presidency	...	...	14,958	2,222
Grand total	109,741	42	208,369	35,166½
Grand total 1899-1900	102,401	28	197,460	33,671

Statement No. 3.

Province	Reserved forests.		Protected forests.		Unclassed forests.	
	Timber and fuel.	Bamboos.	Timber and fuel.	Bamboos.	Timber and fuel.	Bamboos.
	Cubic feet.	*Number.*	*Cubic feet.*	*Number.*	*Cubic feet.*	*Number.*
Bengal	21,662,711	11,722,736	18,692,725	4,708,287	737,803	7,602,534
Northwestern Provinces and Oudh	12,471,275	10,755,816	414,480	28,840	23,964	2,225
Punjab	6,479,509	364,444	22,292,515	24,052	12,818,273	70,430
Burma	10,271,019	15,883,000	....	....	33,767,459	46,540,000
Central Provinces	15,191,333	18,386,869	....	....	29,590	2,500
Assam	1,217,924	1,692,334	....	....	10,335,134	25,841,414
Coorg	164,899	165,110	265,370	11,100	....	....
Ajmeer	224,831	1,770	1,405	....	7,840	....
Baluchistan	28,343	....	....	....	371,822	....
Andamans	1,400,304	171,951	....	....	740,855	498,791
Berar	3,112,707	3,385,113	....	....	....	....
Total Bengal presidency, 1900-1901	72,224,855	62,529,143	41,666,495	4,772,279	58,832,740	80,557,894
Total Bengal presidency, 1899-1900	72,133,179	69,483,919	36,594,315	4,682,206	60,700,465	74,972,453

DEVELOPMENT OF TRAFFIC ON THE SIBERIAN RAILROAD.*

The Official Messenger publishes a series of statistics in regard to the Siberian Railroad, which show the development of the traffic on this line. The road was opened to traffic by sections, as the work of construction advanced. The opening of the Tcheliabinsk-Omsk section dates as far back as 1894, but trains have run through to Irkutsk only since 1898. In 1898, 860,662 passengers were carried; in 1899, 919,782; and in 1900, 966,551 persons, divided according to classes:

Description.	1898.	1899.	1900.
	Number.	*Number.*	*Number.*
First class	3,740	5,864	5,738
Second class	34,978	48,612	53,937
Third class	263,659	308,818	371,634

Three hundred and five thousand four hundred and twenty-six emigrants were also carried. The small increase in 1900 was due to the troubles in China and the bad crops in Asiatic Russia.

In addition, the Siberian Railroad carried, in 1898, 86,663 officers and men; in 1899, 130,598; and in 1900, 211,976.

The receipts derived from passenger traffic were 2,003,633 rubles

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*A report covering the same information has been received from Consul Smith, of Moscow.

($1,031,871) in 1898, 2,414,746 rubles ($1,243,594) in 1899, and 3,135,231 rubles ($1,614,644) in 1900. The quantity of merchandise carried by fast freight shows 6,840 tons in 1888, 13,404 tons in 1889, and 27,759 tons in 1900. These goods consisted principally of butter, fresh meat, fish, fruit, and many other products which abound in Siberia and for which the market is steadily increasing in the Far East. The traffic in butter alone increased 64 per cent from 1899 to 1900. The traffic by slow freight was far more considerable, viz: In 1898, 617,123 tons; in 1899, 661,118 tons; and in 1900, 714,477 tons.

One product which will be of importance in Siberian railroad traffic is coal; of this, 1,295,242 poods (21,077 tons) were carried in 1900 against 438,147 poods (7,108 tons) in 1899 and 428,209 poods (6,962 tons) in 1898. These figures are relatively insignificant, but the coal production is developing rapidly in Siberia, and deposits have been found in the Kuznetzkaia Valley, Province of Tomsk, which are said to be 400 versts (265 miles) long and 100 versts (66.3 miles) wide. During 1900, 18,000,000 poods (292,683 tons) of coal were consumed by the railroad alone. Other large coal mines are situated in the valleys of Mazalovka, Kitat, and Altchedat, near the station Sudjenka. In 1900, these mines yielded 5,000,000 poods (81,300 tons).

The largest coal mines in East Siberia are those of Tcheremkovo, district of Balagany, Province of Irkutsk; those of Ekibaz-Tuz, in the territory of Semipalatinsk; and those in the districts of Enisseysk, Irkutsk, and Akmolinsk.

Among the numerous articles carried that show an increase are cement, plaster, lime and building materials, mineral oils, cast iron and steel ware, and meat.

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *December 6, 1902.*

NEW SAFETY DEVICE FOR RAILWAYS.

The American newspapers of November 13 contained a press telegram announcing that on the day previous a new electrical device for preventing collision between railway trains had been tested with entire success in the presence of a board of experts on one of the State lines near Frankfort. Since any improvement which can effectively reduce the danger of accident in railway travel appeals so directly to popular interest, it has been deemed timely to submit a brief account of this new device, which seems to mark an important advance step in the solution of a difficult and perplexing problem.

It is the joint invention of Messrs. Hubert Pfirmann and Max Wendorf, and its construction and method of operation are as follows: Midway between the rails is laid a light third rail of the ordinary T pattern, the joints of which are so connected as to form a continuous conductor.

Midway under the forward part of the engine is hung the working instrument, an electrical apparatus inclosed in a square case or jacket occupying a cubic foot of space. The instrument is connected with a contact shoe,* which slides along the third rail and by wires with a telephone and electric alarm bell in the cab of the engine driver, and a red incandescent lamp which is lighted by the same impulse that rouses the alarm bell into action. A further improvement of the device sets the electric brakes on the engine or entire train simultaneously with the alarm signal which sounds the bell and lights the lamp. The apparatus is so adjusted and arranged that the engineer can at any moment, by touching a lever, satisfy himself that it is in full working condition.

The tests on November 12 were conducted on the main line from Frankfort to Hanau, between the stations Sachsenhausen and Goldstein, and a translation of the official report will illustrate concisely the working of the apparatus. Two locomotives, numbered respectively 290 and 1420, had been equipped with the new device and the experiments proceeded as follows: Engine 290, drawing a special train and approaching Sachsenhausen at full speed, received the danger signal and came to a full stop; the driver of 290 then asked by telephone the cause of the signal and received from the keeper of a grade crossing, half a mile in front, word that a wagon had broken down in crossing the track and obstructed the line. After ten minutes' wait, the engineer of 290 received word by telephone that the obstruction had been cleared away and thereupon resumed his trip.

A mile farther on, the signal on 290 again sounded, and the driver was informed, by telephone as before, that the semaphore round a curve and more than half a mile distant was set at "halt." Thereupon engine 290 slowed down and proceeded cautiously, sounding its whistle at short intervals, the telephone bell in the drivers' cab ringing continuously until the curve was rounded, when the ringing ceased, notifying the engineer that the semaphore had changed to "track clear." Thereupon 290 resumed full speed.

In the tests to prevent collision, engine 1420 came up rapidly from behind and on the same track as 290, which had slowed down and was proceeding cautiously in consequence of reported danger in front. The moment that 1420 came within 1,000 meters (1,093 yards) of 290, the signal on both engines began to ring and their red lights to glow. Thereupon 1420 halted, the driver inquired of 290 in front the cause of the alarm, and a complete understanding between the two trains was immediately established. An important point in this connection is that in practice the same warning signal is sounded upon every engine equipped with the apparatus which is on the same track and within the prescribed radius—a kilometer or a mile, as the case may be—from the engine and train which cause the obstruction. If a semaphore be falsely set at safety, the train may run past it into a block in which another engine is halted or moving with perfect security that warning will be given in ample time to prevent a collision under any and all conditions of darkness, fog, storm, or mistaken instructions. The invention has other minor points of usefulness, but the foregoing will be sufficient to indicate the general method of its operation and the measure of its efficiency. In effect, it puts the engine driver of every train into instantaneous touch with other trains, switchmen, and station and crossing keepers in his neighborhood and keeps ever before his eye and ear an automatic and infallible signal which springs into activity the moment that his locomotive, whether running forward or backward, comes within the radius of danger from collision. What ghastly wrecks might be spared, what precious lives saved, what a sense of added security given to multitudes of railway travelers, what delays avoided under certain atmospheric conditions, by a device which puts the man behind the headlight, rushing on through night and fog and storm, into instant and unerring touch with the train next in front and with those whose duty it is to watch and guard the safety of the line! That the present invention is yet perfected and fully adapted to practical use is not to be prematurely assumed; but, in the judgment of those whose opinions are entitled to respect, the way has been pointed out and the germ of a new and effective system discovered.

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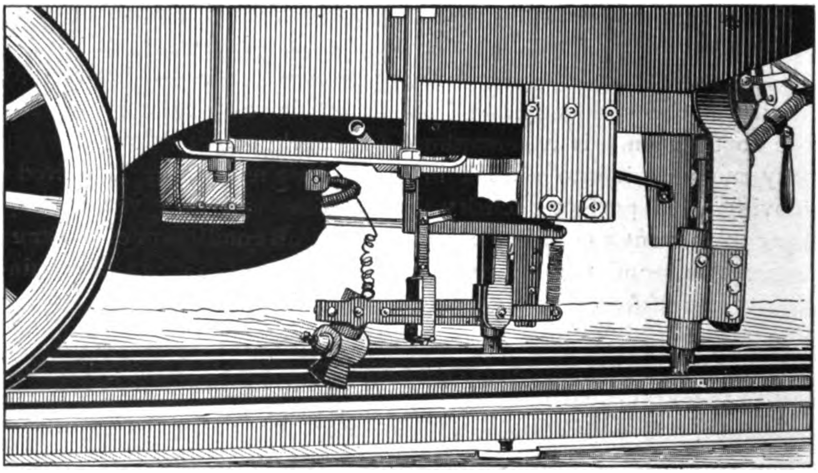
* See end of report for illustrations.

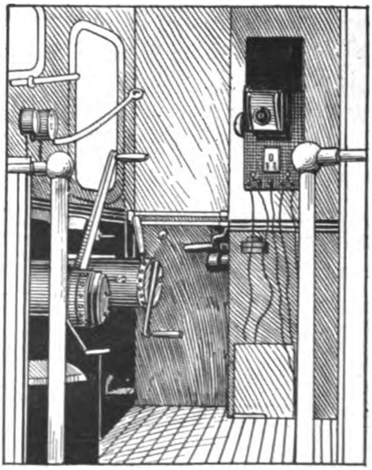
The German Government has directed that a section of track be equipped with the apparatus for careful, practical experiments, and it is reported that the Government of Russia has obtained license to test it in actual service on its new military lines now under construction in Siberia.

FRANK H. MASON,
Consul-General.

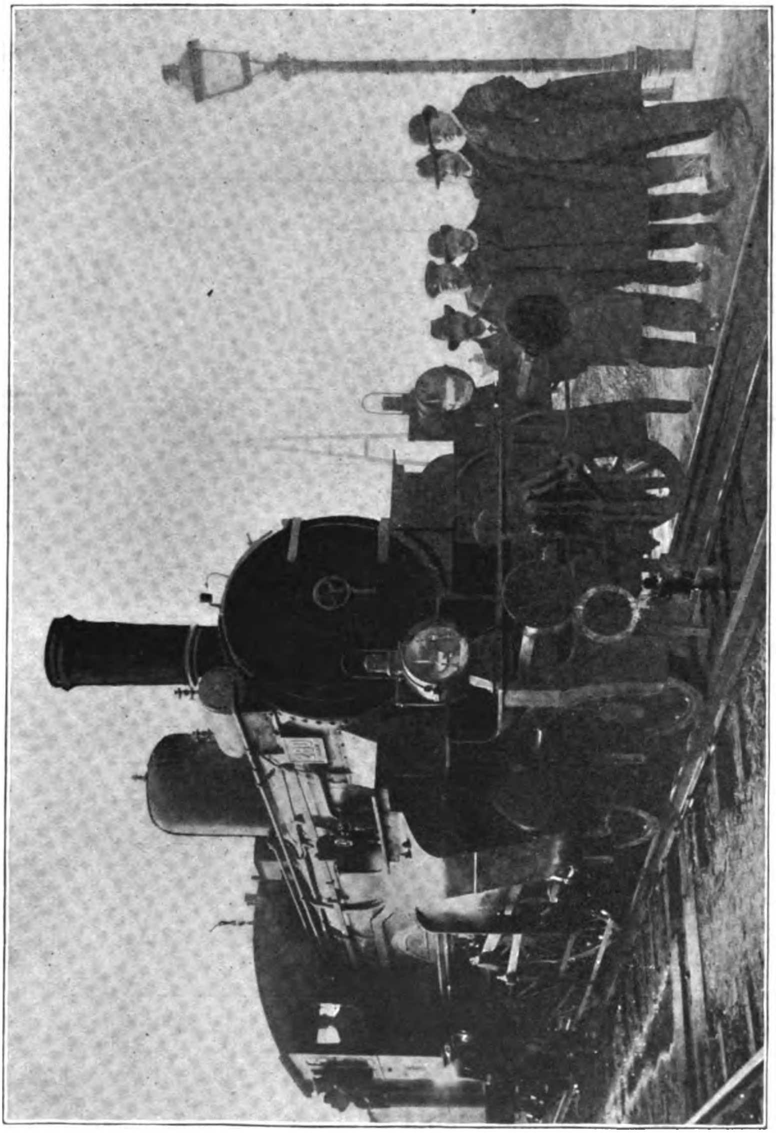
BERLIN, *December 18, 1902.*



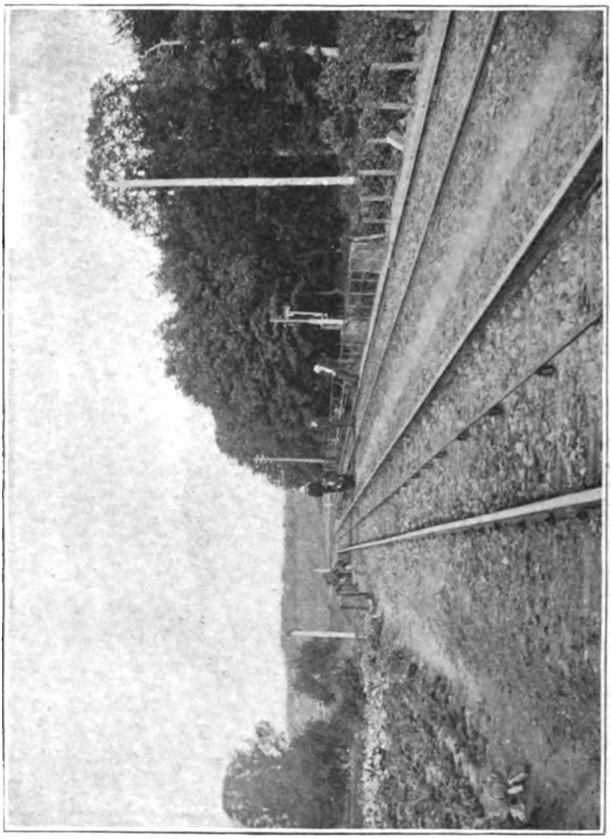
THE THIRD RAIL AND CONTACT SHOE.



TELEPHONE, ALARM BELL, AND RED LIGHT IN ENGINE CAB.



ENGINE 290, EQUIPPED FOR EXPERIMENTS AND SHOWING THIRD RAIL.



THE PREPARED TRACK.

THE NEW GERMAN TARIFF.

The tariff act which, after the longest and most momentous struggle in German legislative annals, passed the Reichstag during an all-night session on December 13–14 was immediately thereafter confirmed by the Bundesrath and became a law of the Empire. The imperial decree followed, announcing its enactment, defining the classes of articles that are to be duty free, and declaring that the date at which the new tariff law would become operative would be announced hereafter. When this will be will depend mainly upon the time that will be necessarily occupied in negotiating new commercial treaties with the several nations with which Germany has had such treaties during the past ten years, which conventions must now be revised and agreed to on the wholly novel basis which will be established by the new tariff. How long this will require is as yet a matter of conjecture, but it is generally thought that the treaty negotiations will occupy from twelve to eighteen months, which would bring the tariff law of December, 1902, into force somewhere between January and July, 1904.

The law as finally enacted was, with a few more or less important changes, practically identical with the bill originally proposed by the Imperial Government and first officially published on July 26, 1901. Its provisions, as they would affect the principal articles of import from the United States, were fully described in a report of this series dated July 27, 1901, and published as ADVANCE SHEETS No. 1120, of August 22, in that year.* It remains, therefore, to note the changes which were made in the original act during the seventeen months while it was under discussion, and to observe how the law as a whole is likely—unless its effects shall be modified meanwhile by a treaty of reciprocity between the two countries—to affect the future import trade of Germany from the United States. The most important schedules, so far as our country will be concerned, are those which relate to agricultural products, viz, cereals, meats, and domestic animals, and a glance at these sections reveals the general scope and purpose of the enactment to protect the farmers and landowners of the Empire from foreign competition, and to make such foreign-grown food stuffs as are imported pay an increased revenue to the State.

Especially significant in this connection are the schedules covering the duties on grains and cereal products. In the following synopsis are given under each head (1) the present autonomous rate of duty; (2) the minimum rate to which these duties have been hitherto reduced by treaties with certain favored nations, including the United States; (3) the new duties proposed by the Government bill of July 26, 1901; and (4) the rates, in marks and United States currency equivalents, as they were adopted in the completed act. The figures show in all cases, unless otherwise specified, the amount of duty per double centner—*i. e.*, 100 kilograms, or 220.4 pounds avoirdupois.

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*Also in CONSULAR REPORTS No. 253 (October, 1901).

Description.	Present maximum.	Treaty duties.	Government bill proposed, 1901.		New rates adopted.	
			Marks.		*Marks.*	
Wheat	$1.19	$0.83	6.50	$1.54	7.50	$1.78
Rye	1.19	.83	6.00	1.42	7.00	1.66
Oats	.95	.67	6.00	1.42	7.00	1.66
Barley	.53	.47	4.00	.95	7.00	1.66
Barley malt	.95	.85	6.25	1.49	10.25	2.44
Corn	.47	.38	4.00	.95	5.00	1.19
Wheat flour	2.50	1.74	13.50	3.21	18.75	4.36
Potatoes	Free.	Free.	Free.	Free.	2.50	.59
Oatmeal	2.50	1.74	13.50	3.21	18.75	4.36
Hops	4.76	3.38	60.00	14.28	70.00	16.66
Dried apples, pears, etc	.95	.95	8.00	1.90	10.00	2.38
Fresh apples in barrels	Free.	Free.	6.00	1.42	10.00	2.38
Sausages	4.76	4.04	30.00	7.14	70.00	16.66
Lard	2.38	2.38	12.50	2.97	12.50	2.97
Cured meats	4.76	4.04	30.00	7.14	45.00	10.71
Butter	4.76	3.80	30.00	7.14	30.00	7.14
Cheese	4.76	4.76	30.00	7.14	30.00	7.14
Eggs	.71	.47	6.00	1.42	6.00	1.42
Margarin	4.76	3.80	30.00	7.14	30.00	7.14
Cows and oxen...per head	2.14	2.14	25.00	5.95	18.00	4.28
Horses...do	4.76	4.76	....	....	90.00 to 360.00	21.42 to 85.68
Hogs...do	1.42	1.19	10.00	2.38	18.00	4.28
Oysters (shell)	11.90	....	50.00	11.90	100.00	23.80
Wood alcohol	Free.	Free.	15.00	3.57	20.00	4.76
Shoes:						
Coarse	11.90	11.90	85.00	20.23	85.00	20.23
Medium	16.66	15.47	120.00	28.86	120.00	28.86
Fine	16.66	15.47	180.00	42.84	180.00	42.84
Lumber:						
Rough	....	....	6.00	1.42	6.00	1.42
Dressed	2.38	2.38	10.00	2.38	10.00	2.38
Sewing machines:						
Treadle	5.71	5.71	35.00	8.33	35.00	8.33
Power	5.71	5.71	20.00	4.76	20.00	4.76
Bicycles	....	9.52	150.00	35.70	150.00	35.70

Other new rates that will affect, more or less, standard imports from the United States are the following:

Electrical machinery, viz, dynamos, electric motors, converters, transformers, etc., for machines:

	Marks.
Under 500 kilograms (1,102 pounds)..............per 100 kilograms...	9.00=$2.14
500 to 3,000 kilograms (1,102 to 6,614 pounds)..................do......	7.00= 1.66
More than 3,000 kilograms (6,614 pounds) in weight.........do......	6.00= 1.42

Machine tools for working metals, wood, or stone, steam and hydraulic presses, welding machines, mechanical hammers:		Marks.	
250 kilograms (551 pounds) in weight	per 100 kilograms	20.00=	$4.76
250 to 1,000 kilograms (551 to 2,205 pounds)	do	12.00=	2.85
1,000 to 3,000 kilograms (2,205 to 6,614 pounds)	do	8.00=	1.90
3,000 to 10,000 kilograms (6,614 to 22,046 pounds)	do	6.00=	1.42
Over 10,000 kilograms (22,046 pounds)	do	4.00=	.97

Steam engines, turbines, gas and caloric engines, blowing machinery, pumps, portable cranes, pile drivers and power hammers, ice machinery, etc., range from a rate of $23.80 per 100 kilograms (220.4 pounds) for machines weighing less than 40 kilograms (88 pounds) each to $4.28 for machines between 1 and 2 tons in weight, and so on down to 83 cents per 100 kilograms for machinery weighing more than 100 tons each.

		Marks.	
Telegraphic instruments, telephones, electrical lighting and power transmission apparatus, electrical measuring instruments, etc.		60.00=	$14.28
Motor, railway, and street cars		10.00=	2.38
Freight cars, open and covered		5.00=	1.19
Passenger cars:			
Not upholstered		7.50=	1.78
Upholstered		12.00=	2.85
Leather shoes weighing more than 1,100 grams (2½ pounds) per pair	rate per 100 kilograms	85.00=	20.23
Shoes weighing less than 1,100 grams (2½ pounds) per pair	do	120.00=	28.56
Shoes weighing less than 600 grams (1¼ pounds)	do	180.00=	42.84

Under the new tariff raw cotton, flax fiber, and most other raw materials, including copper, lead, and aluminum, remain free of duty.

Among the few reductions established by the revised schedules are sections 808 and 810, which cover, respectively, spades, shovels, hoes and plowshares, hay and manure forks, scythes, sickles, and straw cutters, which under the present tariff are dutiable at 10 marks ($2.38) per 100 kilograms (220.4 pounds). The Government bill of 1901 divided these articles into three groups and fixed the duty at 4.50 marks ($1.07) for spades and shovels, 10 marks ($2.38) for forks, and 15 marks ($3.57) for scythes and sickles, but the agrarian interests were strongly represented and in the schedule finally adopted spades, shovels, and plowshares are fixed at 4.50 marks ($1.07), hay and manure forks and other similar implements at 7.50 marks ($1.78), and scythes, sickles, and straw cutters at 12 marks ($2.85) per 100 kilograms. These sections are worthy of note in this connection as illustrations of the scrupulous care with which the new tariff act, from first to last, favors and supports the interests of the agricultural as against the industrial and mercantile classes.

SOME OBVIOUS RESULTS OF THE NEW RATES.

Assuming that the tariff of December, 1902, may be put in force before a new treaty of reciprocity may have been concluded between the United States and Germany, the duties on several leading articles of import from our country will be modified as follows: Wheat, which now under the treaty modifications pays 83 cents, will then pay $1.78 per 100 kilograms (220.4 pounds), or about 58.5 cents per bushel, which in some years would have been a fair average price for the grain itself in the American market. Paragraph 1 of the administrative decree which accompanies the tariff act stipulates that in no case shall the prescribed duties on cereals be reduced by any treaty of commerce or reciprocity below the following minimum rates per 100 kilograms:

	Marks.
Wheat	5.50=$1.30
Rye	5.00= 1.19
Barley malt	4.00= .95
Oats	5.00= 1.19

Flour will carry a practically prohibitive duty of $4.36 per double centner, equal to about $4.06 per barrel of 196 pounds. The milling facilities of the United States have now reached a point at which they are able to manufacture into flour all the wheat grown in our country. Naturally, under these conditions there is a vigorous search for foreign markets for American flour. It is not probable that any such market will be found in Germany. Both the existing tariff, the new one now under consideration, and any future schedule likely to be adopted are and will be so constructed as to enable the German miller, even when grinding imported wheat, to undersell flour from the same country in which the foreign wheat was grown. The milling interest of this country includes a vast number of small mills, located in every part of the Empire, and owned by so large a number of persons that their interests are certain to be permanently and securely protected.

Another significant and effective section of the new tariff is the one—No. 46—which relates to fresh apples, pears, and quinces. Hitherto, these fruits have been free of duty, and a large import trade has been built up during the past five or six years. During the eleven months ended November 30, 1902, 110,327 tons of fresh apples were imported into Germany, of which 12,091 tons came from the Netherlands, 37,284 tons from Austria-Hungary, 48,745 tons from Switzerland, and the remainder from France, Italy, Russia, and the United States, which last contributed 1,071 tons. It is proper to say, however, that December is the principal month for the import of American apples, and the figures for that month are not known or included in the above totals. Such a rapidly growing influx of foreign fruit inspired the framers of the new German tariff to provide that apples, pears, and quinces "unpacked" shall be admitted free from September 25 to November 25. Thenceforward, until September 25 of the next year, they will be dutiable at 2.50 marks (60 cents) per double centner. Meanwhile all packed apples—that is, contained in barrels, boxes, or otherwise than in bags or loose in bulk—must pay 10 marks, or $2.38, per 100 kilograms (220.4 pounds). The effect of this ingenious provision will be that while apples in bags or loose in canal-boat loads will come in from neighboring countries free during the season of apple harvest, and at all other times under a nominal duty, the fruit coming oversea or long distances by rail will be assessed about $2 per barrel. The question of future German trade in American apples will depend, therefore, largely on whether the grades of fruit suitable for this market can or can not be brought oversea in sacks or loose, like bulk wheat, in the holds of vessels. The American apple is fully introduced and highly esteemed in this country, but it is doubtful whether it would stand on any large scale a duty of $2 per barrel.

The duties on shoes range, as above explained, from $20.23 per 100 kilograms (220.4 pounds) for qualities weighing more than 2.2 pounds per pair to $42.84 for the same quantity of fine shoes weighing 600 grams (1.25 pounds), or less, per pair. The net effect of the new schedule will be, in the opinion of the experts, to raise the average duties on a retail stock of men's, women's, and children's shoes about 25 cents per pair. This increase, if shared by the American manufacturer and his German customers, ought not to interfere seriously with the large and steadily increasing import of American foot wear.

THE QUESTION OF COMMERCIAL TREATIES.

The general subject now enters upon its final and, in some respects, most complicated phase—that of the negotiation of a new set of commercial treaties based on the revised tariff. During the final debate on the bill in the Reichstag, it was promised that the Government would undertake, before making new conventions, a thorough revision of all existing treaties which contain the most-favored-nation clause. As a reason for this, it was stated that the United States has introduced in practice a modified interpretation of that clause which renders it inadvisable for Germany to concede most-favored-nation privileges to any countries except those with whom new and special arrangements will be made.

A new Reichstag will be elected in June, and one of its earliest and most important duties will be the ratification of the new treaties.

It is therefore important not only that they shall be agreed upon as soon as practicable, but that a Reichstag shall be elected with a majority that will sustain the policy of reciprocity treaties, the general effect of which will be to reduce the higher duties that have just been adopted.

The tariff law as it stands is an Agrarian measure drawn and enacted with the avowed and obvious purpose of enhancing the interests of agriculture. That the duties on cereals, meats, horses, fruits, and other agricultural products were pushed to figures which the Government thought excessive and hesitated to accept, goes almost without saying. The Government is now put into the somewhat curious attitude of depending upon the political elements which opposed the higher duties for power to secure the ratification of the treaties upon which the future commercial development and prosperity of the Empire will so largely depend. Another Agrarian Reichstag will assuredly oppose any commercial treaties which threaten to seriously reduce duties on agricultural products. Representatives of industrial and commercial interests, on the other hand, will support negotiations which will in effect reduce the cost of bread and meat for their employees and open the way for liberal and free working relations with other nations. The coming elections will have, therefore, an exceptional interest for other nations as well as for Germany.

FRANK H. MASON,
Consul-General.

BERLIN, *January 10, 1903.*

METRIC WEIGHTS AND MEASURES IN GERMANY.

In view of proposed legislation to render the metric system obligatory for Government use in the United States, an effort has been made to ascertain from commission agents, importers, etc., in Germany how far the use of English weights and measures in the United States is considered a hindrance to the trade between the two countries; secondly, what results have been obtained by the introduction of the metric system in Germany, and the value of these results as bearing upon the question at issue in America. Considerable difference of opinion was found among the parties interrogated as to the extent of the hindrance caused by the use of different systems in the two countries.

An American commission agent residing at Berlin, who is constantly bringing American and German business men into connection with one another and who is quite intimately acquainted with the import and export trade between the two countries, considers that the use of the awkward system at present employed in the United States is a very decided inconvenience and hindrance to trade between the two countries. He cited various instances where injury had been caused, and among others the misfortune of an American who had his goods seized at the German custom-house and was involved in a lawsuit with the Government, owing to a blunder caused by the use of the two systems. A Hamburg commission agent and a German citizen stated that he was firmly convinced that the use of different weights and measures in the two countries caused inconveniences that made themselves seriously felt in every export and commission house dealing in American goods; that the conversion into decimal units caused serious loss of time; that the system of bookkeeping in use in Germany could not be applied to American goods. On the other hand, another Hamburg commission house dealing largely in American goods, which made inquiries among the different importing houses, stated that while the American weights and measures were considered extremely awkward and inconvenient, they were not looked upon as a serious obstacle to trade with the United States, as the firms accustomed to doing American business were used to them and employed tables for converting from one system to another.

Judging from the various sources of information at hand, it would seem likely that the use in America of the present system of weights and measures, while causing some inconvenience and increased clerical labor, does not seriously hamper the American export trade through the large German commission houses dealing regularly with the United States. With the firms buying only occasionally from America, the inconvenience of the two systems is felt more keenly. American firms unacquainted with exigencies of foreign trade and seeking to obtain connections or business abroad continue to send circulars in the English language, in which our weights and measures are used, the result being that they generally find their way to the waste-paper basket without serious consideration. A consular officer has not infrequent opportunity to observe difficulties created by ignorance of the metric system on the part of Americans, who are placed at a disadvantage owing to their ignorance on this subject. Particularly in the export of machinery, in which complicated specifications are often requisite, the difficulties caused by the use of the two systems are especially apparent.

Of greater importance than its bearing upon our foreign trade is the effect of the weights and measures employed upon the industrial life in the United States; but the whole subject of the advantages and disadvantages of the metric system has been so exhaustively treated in reports to the American Government and easily attainable literature that the scope of this report is restricted as closely as possible to what lessons can be derived from German experience.

On August 17, 1868, the law was published which made the use of the metric system permissible after January 1, 1870, and obligatory after the 1st of January, 1872. Whether the Congress of the United States can or ever will take such radical action is an open question, and the results of the adoption of the metric system by the American Government for itself can not be gauged by German experience; but in case it is eventually decided to render a system of weights and measures obligatory throughout the United States, the experience obtained here has a certain value. According to testimony obtained at the Berlin Chamber of Commerce and through other reliable sources of information, the general use of the metric system in wholesale business was introduced promptly without serious inconvenience or opposition and with very satisfactory results. In retail trade some of the old weights and measures are still in use, after having been modified in order to correspond with the metric system, the old names being still retained. The German pound, for instance, is exactly one-half a kilogram, and many articles are sold at retail by the pound, half pound, etc. Professor Fischer, who was in charge of the German bureau of weights and measures at the time the metric system was adopted, and is probably better qualified to judge of the difficulties encountered in its introduction into Germany than anyone else, stated in a personal interview that no serious or concerted popular opposition to the innovation was encountered, and that owing to the period of time after the law was published before the metric system became obligatory, the public was well supplied with metric weights and measures and more or less familiar with their use. Professor Fischer is fully convinced as to the great benefit derived by the German nation from the change. As to the expense involved by the change, it is impossible to derive any very definite conclusion from the statistics and reports of the German Government. Information was asked on this point both by the American and English Governments some time ago, together with data as to the difficulties and results of the introduction of the metric system into Germany, but a careful examination of the reports made by the German authorities failed to give any definite information on this point. Owing to the different economic conditions that prevailed in Germany thirty years ago, such information as could be obtained relative to the expense entailed by the introduction of the metric system would necessarily be of very limited value.

Whether the metric system could be introduced as promptly and easily in the United States as it was in Germany is questionable, as Germany is a much smaller country, and the German people submit more readily to governmental interference and guidance. On the other hand, the American people are certainly less conservative and quicker to adopt new ideas than the Germans in 1872. Prior to the introduction of the metric system, the Zollpfund, which is equal to half a kilogram, had been introduced by the custom-houses and was in general use throughout Germany, but the German currency of 1872 was not based on the decimal system, as is the case with the American currency. It is questionable whether the retention of the Pfund and some of the other old measures was of advantage. Professor Carstens, who is an authority and who published several books on the subject, protested against the retention of any of the old measures in a pamphlet which appeared in 1868, and his prediction that this halfway measure would be punished by delaying the complete adoption of the decimal system has been verified by subsequent events.

While German experience as to the difficulties incident to the introduction of the decimal system may be of limited value, there can be no question as to the great advantage derived from the change. On this point, public opinion is practically unanimous; whether it be the experts of the bureau of weights and measures, business men, or manufacturers, only one opinion has been found, and when the radical advantages of the metric system over the weights and measures formerly in use are considered, this unanimity is almost a matter of course. It is only those who have used the metric system after having been accustomed to the use of other weights and measures who can realize fully its great superiority when calculating or computing. The only example of the advantages of the decimal system for purposes of calculation over other systems that can be readily observed by the American public is the far greater ease and rapidity with which it is possible to calculate in dollars and cents than in pounds, shillings, and pence. While, owing to the great number of semiindependent States in Germany, the need of a single authorized system of weights and measures was still more imperative than in the United States, the advantages to be derived in America by the adoption of the metric system are practically the same as have already been attained in this country. Owing to its scientific character and greater simplicity, the German citizen has a far more complete comprehension of the weights and measures of his country than the American. He saves a great deal of time and labor both at school and in later life and numerous possibilities of error are avoided. Considering the inherent advantages of the metric system and the experience of Germany and other countries where it has been introduced, it is safe to predict that if it ever comes into general use in the United States there will be the same unanimous verdict both as to its satisfactory character and the wisdom of its adoption that is given in Germany to-day.

The metric system has spread with ever-increasing rapidity throughout the civilized world. It has been adopted by the European states, with the exception of England and Russia, and by most of the South American states, by Mexico, and even by Turkey and Egypt. Unless the American people are willing to see the civilized nations using one universal system of weights and measures and the United States and the more backward countries like China adhering to their old and clumsy weights and measures, it is likely the metric system will have to be adopted. Both in England and Russia the sentiment in favor of the metric system seems to be growing steadily, and it is likely that it may be adopted in these countries within the near future. It is probable that the agitation in favor of the adoption of the metric system in the United States will continue and that if it is not introduced now it may be introduced later on when the change would involve far greater expense and inconvenience. With the population increasing 20 per cent every ten years and a rapidly expanding industrial development, it is important that the metric system, if it be adopted at all, should be accepted as promptly as possible.

In considering the question of the adoption of the metric system in the United States, the one valid objection that can be raised is the difficulty of the change. Owing to different political and industrial conditions, the experience of European countries is of limited value to the United States; but their experience tends to show that the radical measure of rendering the metric system permissible for a certain period, after which it becomes the only system that is legal, is an effectual way of bringing it promptly into general use, and is far more economical and satisfactory than halfway measures. The experience of Germany also shows that an efficient bureau of weights and measures is one of the most potent and necessary factors in making such a change.

While the general introduction of the metric system into the United States will undoubtedly cause temporary expense and trouble, the benefits derived from its adoption will be permanent, and a far greater population than that of the United States at present will be materially benefited by the change.

DEAN B. MASON,
BERLIN, *December 22, 1902.* *Vice and Deputy Consul-General.*

GERMAN SHIPBUILDING: PROGRESS ON THE WESER.

Within a comparatively short time great things have been accomplished in Germany in advancing her marine interests. With a spirit of enthusiasm and with extraordinary activity the builders and managers of German steamship lines set out to build up a fleet of merchantmen capable of competing with that of any other nation. How well they have succeeded, the world knows. Wonderful, indeed, has been the advance made in the size, in the number, and in the speed and comfort of German ships that now carry passenger and freight traffic to the most distant ports on the globe.

This progress has been effected largely within the last three decades. About the time that the Germans entered this field of building all those engaged in ship construction began to use steel and iron instead of wood, and they were thus able to profit by the experience of others. Their unprecedented success has culminated in the twin-screw steamer *Kaiser Wilhelm II*, which was recently built and launched at Stettin, and will start on its maiden trip from Bremen to New York on April 14, 1903. Not less than 11,000 tons of steel and iron and other shipbuilding material were welded and riveted and hammered together at the Vulcan yards to form this latest ocean leviathan.

The first Atlantic steamship which adopted a screw propeller in addition to the side-wheels was the world-renowned *Great Eastern*, built in the years 1852–1857. The gradual elimination of side-wheels and the general adoption of screw propellers for ocean steamers dates from that time. The improvement in the propelling machinery was equally marked, the simple-cylinder system being supplanted first by the double, then by the triple, and finally by the quadruple expansion system, which uses the steam a corresponding number of times, thus causing a considerable saving in coal. Finally, steel completely superseded iron and wood in the construction of large steamers. All these improvements aided the industry in Germany, but it was not until the year 1897 that a German steamer was run off from the stocks that was destined to break records for speed. This was the *Kaiser Wilhelm der Grosse*. In 1900 the *Deutschland* was launched. In 1901 the *Kronprinz* started on her phenomenal career, and will be joined in a few months by the *Kaiser Wilhelm II*. All these were built at the Vulcan yards at Stettin by German brains and German hands. How these compare with other ocean greyhounds will be seen from the following table:

Steamer.	Line.	Length.		Width.		Registered tonnage.	Speed.	Horse-power.
		Ft.	*In.*	*Ft.*	*In.*	*Tons.*	*Knots.*	
Lucania	Cunard	622	0	65	0	12,950	22	27,000
Kaiser Wilhelm der Grosse.	North German Lloyd	649	5	66	0	14,349	23	30,000
Oceanic	White Star	704	0	68	0	17,040	21	23,000
Deutchland	Hamburg-American	684	0	67	0	16,502	23.5	37,000
Kronprinz	North German Lloyd	663	4	66	0	14,908	23.5	36,000
Kaiser Wilhelm II	do	706	6	....		20,000	23.5	40,000

Thirty years ago there were only seven shipyards in this country; to-day there are about 60, large and small. Five are located in this section, on the banks of the River Weser between Bremen and Bremerhaven. While they are not equal to building the very largest types of merchantmen and war vessels, they are fully equipped for turning out ordinary ocean-going vessels of every description. These five concerns have been crowded with orders during the past few years, and while many of the other industries in this country are languishing, the Weser shipyards are all doing a prosperous business, dividends ranging between 10 and 12 per cent having been declared at their last annual meetings.

The Weser Aktiengesellschaft, the only concern located within the city limits of Bremen, owing to its steadily increasing business, is now building new yards, covering about 6 acres of land, a short distance down the River Weser, where it proposes to move its entire plant in the spring, to attain the much-needed room. At the general meeting of stockholders on October 30, 1902 (when 12 per cent dividends were declared), it was decided to increase the paid-up capital by 1,250,000 marks ($297,500), making a total capitalization of 3,750,000 marks ($892,500). The Weser Aktiengesellschaft owns two floating dry docks, in which 96 ships were overhauled and repaired during the past year. During the same period, there were turned out by this company one German cruiser, one freight steamer, and several other craft of various description, such as dredges, barges, etc. There are at present under construction three cruisers for the German fleet, one steamer, and one fire ship, aside from several smaller vessels, and orders have been booked for one steamer for the North German Lloyd, one large dredger for Hamburg, one freight steamer for the Neptune Steamship Company, and several other craft of less magnitude. The contracts already received promise to keep the men fully employed for more than a year to come.

On the right bank of the River Weser, near Vegesack, are the extensive yards of the Vulcan Shipbuilding Company. This plant, like the foregoing, is entirely modern, with large capital and equipment. While it is not in a position to build and equip fast Atlantic ships of the largest type, as does its namesake at Stettin—as the river channel at the frontage of the shipyards is not deep enough for vessels of this draft—a number of good-sized steel vessels for ocean service were quite recently constructed by the Weser Vulcan, as may be seen from the following list:

Steamer.	Length.		Width.		Tonnage.		Speed.	Horse-power.
					Gross.	Registered.		
	Ft.	*In.*	*Ft.*	*In.*	*Tons.*	*Tons.*	*Knots.*	
Strassburg	402	0	64	5	5,057	3,232	11	2,400
Wuerzburg	402	0	64	5	5,085	3,246	11	2,400
Breslau	429	9	54	0	7,524	4,808	12	3,200
Brandenburg	429	9	54	0	7,532	4,808	12	3,200
Erlangen	339	0	47	4	5,200	3,135	11	2,700
Prinz Oscar	420	0	49	0	....	....	13	3,000

During the first six months of this year six ships were launched at these yards, and the firm has 17 other vessels under construction, valued at about 16,000,000 marks ($3,808,000).

At the end of its business year (May 6, 1902) the Tecklenborg Company, at Bremerhaven, capitalized at 2,000,000 marks ($476,000), paid a dividend of 20 per cent. This concern was occupied to its utmost capacity during the entire year, and the repair and dry docks were continually in use. Six double-screw freight and passenger steamers and two very large sailing vessels were building, of which three steamers and one sailing vessel were delivered to the owners. This firm is famous all the world over for building sailing craft, and the vessel completed a few weeks ago is probably the largest in the world. Her name is *Preussen*. She is a five-masted, full-rigged steel vessel; steel sparred throughout. Her length is 440 feet; beam, 50 feet. She has a carrying capacity of 8,000 tons, while her registered tonnage is 4,000. Recently, she started on her first voyage to the west coast of South America. At the close of its business year this company had four vessels under construction, and orders were booked for one lighter, one fishing steamer for the high seas, and one sailing vessel. The building of these seven ships and also of a bridge will keep the plant busy for some months to come.

The Rickmers Rhederei and Schiffbau Company, at Bremerhaven, has three small steamers under construction. The entire stock of this company is held by members of the Rickmers family, hence no annual reports or statistics are made public.

The G. Seebeck Company, at Bremerhaven, closed its seventh business year on June 30, 1902, when a dividend of 10 per cent was declared. These works have also been very busy, especially in constructing steamers for fishing on the high seas. Three of these were completed during the year, while 11, representing a value of some 3,500,000 marks ($833,000), are still under construction. During the same period, they built two passenger and freight steamers for East Asiatic coast service, one steamer for the Australian line, and one tugboat, all for the North German Lloyd Steamship Company. In the last seven years, this company has built 192 ships, of which 23 steamers were for the North German Lloyd. The paid-up capital of the Seebeck Company has been increased by 1,000,000 marks ($238,000), making a total capitalization of 2,200,000 marks ($523,600).

Germany is geographically not strictly a maritime nation—that is to say, she is not located "by the sea," as the waters to the north are practically an inland sea. No other country is so dependent on others for the raw materials that enter largely into the making of a ship. Even her native iron must be mixed with Swedish ores to make it fit for modern purposes. Yet, in the face of all these difficulties, German enterprise has entered the field of naval architecture and has brought about the marvelous growth and phenomenal success in shipbuilding which is enabling Germany to step in one long stride from naval weakness to naval power.

HENRY W. DIEDERICH,
BREMEN, *December 16, 1902.* *Consul.*

BRUSSELS CONFERENCE AND FRENCH SUGAR.

The people of France are happy in the anticipation of a reduction in the enormous prices they have for years been paying for sugar. Their hopes are based on the recent action of the Lower House of the French Parliament, in reducing the internal-revenue tax on that article to 25 francs ($4.82) per 100 kilograms (220 pounds). Up to the present time, the tax has been 60 francs ($11.58) per 100 kilograms, and the retail price of sugar in the groceries 11 cents per pound.

In the debate in the Lower House of Parliament, the opinion was expressed that the consumption would so increase as to compensate for the loss of excise revenue, which aggregated 50,000,000 francs ($9,650,000) per year; but this loss of revenue is more than compensated by the abolition of sugar bounties, which in 1901 amounted to nearly $20,000,000. The Lower House also adopted a bill ratifying the action of the Brussels Sugar Congress.

The cessation of the bounty does not take effect until September, 1903, and it is impossible to estimate at present the reduction that is certain to take place in the growing of beets; but farmers are thinking what they will do with the land that will be released. The growing of beets has been generally confined to the northern departments of France, and before these became the favorite crop, oil seeds were cultivated with profit; also rape seed and poppy. These are imported into France in large quantities, and their consumption has more than doubled within a few years. The Journal d'Agriculture states that while petroleum has taken the place of the oils produced from these seeds as illuminants, they are very popular as lubricants.

An authority in Lyons expresses the opinion that wheat will be grown on much of the acreage heretofore sown in beets, and that its price will be enhanced. The fruit-canning factories in the Midi, which have been almost idle for some years, will find a new career of activity, and an increased export of French preserved fruits may follow. The habit so general in the United States of preserving a large provision of fruit every fall does not prevail in France. The people eat their fruit raw.

It is proposed to increase the allowance of sugar in the army. The testimony of professional pedestrians is conclusive that the use of sugar enables one to support fatigue with much greater ease than that of other foods. A gentleman well known for his scientific attainments says that the mixture of molasses or the residue of sugar with fodder would be productive of excellent results for working oxen and for milch cows. He also asserts: "It is established that sugar can replace a quantity of oats fed to a horse without diminishing his muscular energy."

Mr. Grandeau, in a recent paper on this subject, quoted the following paragraph from the pen of a scientist who was traveling in the Transvaal at the time of the war:

> As a result of circumstances too long to relate, I found myself blockaded between the English and the Boer forces, unable to move without receiving a gunshot from one side or the other. I was forced during six weeks to depend upon sugar, mixed with a little sawdust, for nourishment for myself and six rabbits, which I was absolutely desirous of keeping for breeding purposes. It was impossible for me to find straw for my rabbits. They and your humble servant were none the worse for this diet; we prospered under it and the rabbits grew fat.

I extract a few sentences from a paper written by M. Emile Saillard, director of the laboratory of the United Sugar Manufacturers of France:

> Since the subject of molasses and fodder has been agitated, the farmers and sugar manufacturers have turned their attention to peat (tourbe).
>
> We know from the experiments of Professor Kellner that peat has a depressing

influence upon the digestion of fodder with which it is mixed. But it is questionable whether it has a chemical effect; that is to say, whether a decomposition is produced by the salts of the molasses and those contained in the peat which may have a salutary effect on the mixture as a whole. We have made experiments in this direction, and the result of our analysis is:

Peat.

		Per cent.
Moisture	per 100 grams	14.92
Azote total	do.	.61
Cellulose	do.	18.9
Pentosanes	do.	8.35
Cindres	do.	1.34

Molasses.

		Per cent.
Sugar	per 100 grams	44.37
Cindres	do.	10.21
Extract	do.	72.82
SO	do.	.352
Carbonic acid	do.	.42

These figures vary with the nature of the peat.

Peat generally has an acidulous reaction; the acidity increases with heating, and at the same time the heat is accompanied by an exhalation of carbonic acid.

When peat and molasses are mixed, there is always a throwing out of heat. Measured with a sensitive calorimeter and a thermometer, one of the mixtures that we prepared rose to about 70 calories, using 220 pounds of peat and molasses. This increase is certainly due to the acid properties of the peat acting upon the alkalies freed or carbonated in the molasses.

The writer concludes that the final effect of the mixture is favorable to digestion.

At the national congress held in France in 1902 to consider "rational food for cattle," this subject was again discussed. I quote from a report:

Mr. Lambert, of the Troy sugar mills, heated in a large closed receptacle a mixture of molasses and chopped straw. By drying this mixture in a warm room, a product was obtained which he called pailmel, and which can be readily packed and transported and easily handled. This feed is composed of 45 per cent of straw and 55 per cent of molasses. It contains at least 25 per cent of sugar and 55 per cent of digestible matter. Twelve horses employed in farm work were fed a ration composed of 10 pounds of pailmel, 7 pounds of oats, and 7 pounds of hay during one hundred and twenty days. They were weighed once a week. They increased in weight while doing hard work.

A number of sheep were fed 2⅛ pounds of pailmel and 6½ pounds of peat per day during forty-two days. The total increase in weight per animal was 26 pounds.

JOHN C. COVERT,
Consul.

LYONS, *December 20, 1902.*

MANUFACTURE OF SUGAR IN FRANCE.

There are at present in France 333 sugar factories distributed in 23 departments. The most important—about 12—produce annually 100,000 sacks each. Four produce more than 200,000 sacks each. A sack contains 100 kilograms (220.46 pounds). These 4 largest sugar factories are situated at Pont d'Ardres (Pas de Calais), at d'Abbeville, at d'Escandœuvres, near Cambrai, and at Villenoy, near Meaux. All the factories of France manufactured, from 1900 to 1901, over 1,100,000 tons of sugar. This necessitated 8,700,000 tons of beet roots, occupying for cultivation more than 300,000 hectares (741,300 acres).

As to the harvest of 1902–3, although there is a considerable diminution in the weight of the beet roots and the yield of sugar, there is a considerable augmentation in the yield of refined sugar.

The duration of fabrication is only two months, or two months and a half at most, on account of the difficulty experienced in preserving the beet root, the factories opening in October and closing in December. Because of this necessity, the importance of a factory depends upon the quantity of beets it can procure daily by land or water transport. To increase this supply, the beets are now grated not only at the factory, but also in special establishments erected where the beets are raised, whence the juice is conducted through underground pipes to the factory. Some French factories are fed by as many as 15 of these establishments, situated within a radius of half a mile to 2 miles.

THORNWELL HAYNES,
Consul.

ROUEN, *January 5, 1903.*

EUROPEAN SUGAR PRODUCTION.

Since my reports on this year's estimates of the European sugar production,* many of the beet-growing countries were afflicted by severe weather, which created havoc among the beets in the fields and retarded work at the factories. Besides, it was found that the beets brought to the factories were rather undersized. It is not a matter of surprise, therefore, that recent factory estimates show a considerable reduction.

The International Union for Sugar Statistics, comprising all the sugar factories of the various countries, reports the following December estimates for 1902–3:

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* See ADVANCE SHEETS No. 1493 (CONSULAR REPORTS No. 268) and No. 1512.

Country.	Sugar.	Compared with last year's crop.	
		Loss.	Gain.
	Tons.	*Per cent.*	*Per cent.*
Germany	1,703,815	25.7	
Austria-Hungary	1,060,800	17.9	
France	818,590	26.1	
Belgium	198,000	39.1	
Holland	97,700	51.8	
Russia	1,184,240		10
Sweden	73,098	42.6	
Denmark	38,500	37	
Total	5,174,743		

These figures will probably be increased 230,000 or 250,000 tons by reports from a few less-important countries. The sugar in the beets turned out better than was expected; nevertheless, the total decrease in production from last year is striking.

HENRY W. DIEDERICH,
Consul.

BREMEN, *December 15, 1902.*

FRENCH AUTOMOBILE EXPOSITION.*

The apotheosis of the French automobile industry for 1902 is the exposition at Paris, which was opened December 10. From January to November, 1900, France exported 7,000,000 francs' ($1,351,000) worth of automobiles; during the corresponding period of 1901 the amount was 15,000,000 francs ($2,895,000), and for the same period of this year 30,000,000 francs ($5,790,000). At this exposition there were 200 more exhibitors than last year. One house alone is engaged in furnishing 150 automobiles for the United States. This yearly exposition at Paris can teach much, and if Americans do not come to exhibit they should come to learn.

SPECIAL FEATURES.

For the descriptions that follow, I am indebted to Mr. Leon Ausher's contribution to one of the most important journals of Paris:

> One firm exhibited an automobile for the Ministry of War. It was of 15 horsepower, with carriage armor-plated, carrying a Hotchkiss gun, with ammunition, and capable of 600 shots a minute. A 20-horsepower machine, exhibited by the

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*See also ADVANCE SHEETS No. 1545 (January 15, 1903).

same firm, had 4 cylinders of gun steel, each independent of the other, thus admitting of quick repairs. The admission valves were automatic and the cooling chamber of sheet copper. A 40-horsepower frame had 8 cylinders and no speed-change box; a single lever changed the speed instantly.

The motors of one firm, regardless of the number of cylinders, were fitted with a water jacket around the explosion chamber. In the 1-cylinder voiturette of this same company, the admission of air was above the escapement and automatic, but in the other motors the admission valves were on the same side of the cylinder and interchangeable, while the escape valves were on the other side. Symmetrically fixed to the motor shaft and worked by cogwheels at half the speed of the motor were the shafts which carry the cams regulating the valves. These shafts and their cams were so arranged as to be lubricated by jets of oil from the motor. On the 1-cylinder voiturette, ignition was effected by a sparking plug with induction accumulators and coil. On the other carriages of this company, the same system could be used, according to order, either for magneto-rotary lighting or by the spark system. The two systems could be placed on the same motor, so as to have a reserve sparking apparatus. On the 1-cylinder voiturette, the speed of the motor could be reduced by raising or lowering the admission valve. In the other carriages the motor was controlled by a centrifugal regulator acting on a papillon attached to the gas feed pipe. Water circulated around the cylinders by means of a centrifugal pump worked either by cogwheels or by a friction roller on the fly wheel. The water was passed through the cylinder covers and a refrigerator before returning to the pump. On the voiturette the refrigerator, which was at the front, was fitted with ailettes and the cooling effected by the displacement of the air due to the movement of the carriage. In this case, a water reservoir is indispensable. On the 2 and 4 cylinder carriages of this same firm, the cooler was partitioned and of the honeycomb type. Behind it was a ventilator worked by a strap. This arrangement had the advantage of rendering the cooling independent of the speed of the carriage and proportioned it to the power developed by the motor—that is, to the heating of the water. In this case, the reservoir was useless and a few quarts of water all that was necessary. The gear was thrown by a friction cone. For the 1-cylinder voiturette, the possible speeds were 7, 15, and 25 miles an hour.

Another firm exhibited a 6½-horsepower machine, with wooden frame and vertical supports. To this was attached a false frame upon which was placed the motor, the speed-changing gear, the steering gear, and the carburetor. The motor had water circulation and gas regulator. Ignition was effected by means of accumulators and a coil without a trembler. The radiator was of the type usually employed with wings, fixed in front. The steering was done by a wheel, with endless screw, nonreversible. There were three metal brakes acting both ways, one on the differential and two on the wheels. This carriage on a level road carries four persons at 27 miles an hour and consumes 6 quarts of petroleum.

The carriage of one manufacturer was composed of four parts, totally distinct and easily accessible: First, the frame; second, the vertical motor in front; third, the speed boxes, with friction connection; fourth, the steering gear. The frame, which is in the form of a rectangle made of wood covered with bent-steel plates, strengthened by steel tubes interlaced, supports the body and the springs. The mechanisms of propulsion and transmission were swung, cradle fashion, in a corner-channel hanging from the frame, and resembled in form a balloon frame, being absolutely rigid in spite of its lightness. In front, the frame rested on long, steel springs over the steering gear, which was a new model, fitted with ball bearings and a double oil bath; behind, it rested on the axletree of the drive wheels, attached to the frame by connecting rods so arranged that no accident could happen to the chains. The motor was driven by alcohol and was arranged on the front part of the frame. It was composed of either 2 or 4 vertical cylinders cast in one piece, with water jacket without any breech attached. The connecting rods, wimble, and distribution cogs were inclosed in a carter case, with an oil bath, and sheltered from mud and dust. Cooling was accomplished by means of a turbine with automatic working, which sent a large quantity of water into a radiator fixed in front of the motor. In case of an accident to the pump, the cooling of the water was insured by a thermo-siphon, owing to the position of the water reservoir. The motor was sparked by magneto-ignition.

The regulator acted on the automatic carburetor, maintaining the exact quantity of the mixture regardless of the speed of the motor. The spray was distributed by a double current of air, thus avoiding condensation. By this, the expenditure can be reduced to a minimum and proportioned to the work required, suppressing thumping and enabling the machinery to move as slowly as desired.

All the parts of the mechanism were inclosed in a carter filled with oil. This carter had only one horizontal joint, by means of which the upper part could be removed in order to take out the shafts, cogs, gear connections, and differential, without taking anything to pieces. This mechanism was composed of a longitudinal shaft carrying the connection cone; the latter was free on the shaft and provided with an arrangement to prevent slipping. It was moved by a pedal acting upon a ring of ball bearings, the contact being assured by a vertical spring which could be regulated while running. On the same shaft was attached the sliding train, which by its varying position transmitted the four speeds and the backward movement to the secondary shaft, which had a second connection cone that worked the differential shaft. The four speeds and the backward movement were controlled by one lever, to the right of the driver. All side movements in the shafts of the mechanism or the motor were prevented by the use of ball-bearing abutments. The steering gear sloped backwards, and could not be reversed. It was adjustable, and the wear and tear was reduced to a minimum by a shifting bolt between the screw and the sector.

THORNWELL HAYNES,

ROUEN, *December 20, 1902.* *Consul.*

AMERICAN EXHIBITS AT PARIS AUTOMOBILE SHOW.

An important display of horseless carriages was held by the Automobile Club of France at the Grand Palais, Paris, from December 10 to 25. There were over 180 exhibits of motor cars, auto cycles, and bicycles, and over 400 exhibits of motors, wheels, tires, electric appliances, jacks, and various accessories. Nearly all the goods shown were of home manufacture, very few foreign firms being represented. The only motor cars of American construction were exhibited by the Locomobile Company, of New York, which has branches in London and Paris. The company showed several fine cars, ranging in price from 5,500 francs ($1,061) to 13,500 francs ($2,605), which are about the same as the prices asked by the best French makers; certainly not higher. The manager states that he is well satisfied with the business done during the show.

Some very powerful and well-finished steam automobiles which had won prizes in hill-climbing competitions were shown by Messrs. Gardner & Serpollet. Mr. Frank Gardner, one of the partners in the firm, is an American, but the machines are, I understand, of French manufacture.

Messrs. Fournier & Knopf are agents for France, Belgium, and Switzerland for the Davis Sewing Machine Company, of Dayton, Ohio; the E. R. Thomas Motor Company, of Buffalo, N. Y.; the Eagle Bicycle Manufacturing Company, of Torrington; and the Racine Boat Manufacturing Company, of Racine, Wis. The cycles and motor cycles of the Davis Company have been favorably known in France for many years. One advantage which they have possessed over most of the other American wheels was that parts were kept in stock in Paris, so that accidents could be repaired without long delays or recourse to French workmen. The light but solid "auto bi" of the Thomas Motor Company was greatly admired by French critics, as were also the electric launches and boats of the Racine Company and the cheap and compact electric motors for boats of the Eagle Bicycle Company.

American-wood tires for bicycle wheels, etc., made of rock maple, with a core of beech, are much appreciated in France on account of their great strength, combined with lightness. The machines used by the trick performers, who jump down 10 feet onto a bicycle, are always provided with American-wood tires. Two years ago these tires were imported, ready made, from the United States, but the demand for them has become so great that it has become necessary for the Franco-American Wood Tire Company to erect a factory, with a 180-horsepower electric engine and patent American machinery, at Méry-sur-Oise, a few miles from Paris. The wood used is, of course, still imported from America.

In regard to the exhibit in general, the most noticeable feature is the important increase in the number of public conveyances and vehicles used for commercial purposes. Steam or electric omnibuses are now employed in many parts of France.

The road engines of the Train Scotte Company are employed by the War Department for the transport of heavy guns, ammunition, provisions, etc. The engine exhibited, though a small one, will pull 15 tons up a grade of 7 per cent. Another firm has constructed for the War Department an armor-plated carriage carrying a machine gun.

One of the most interesting exhibits is a wagon for the wireless telegraph. In form, it resembles a small omnibus; there is room inside for two operators and the receiving and sending machines. Fixed in a socket by the side of the wagon is a tall, jointed bamboo pole, nearly 60 feet high, which is supported by wire stays fastened to the roof of the wagon.

An automobile fire engine exhibited by Messrs. Thirion & Sons can travel at a speed of 17 miles per hour and throw 1,500 gallons of water per minute a distance of 140 feet horizontally or to a height of 100 feet vertically.

Adjoining the automobile show is the exhibition of "alcool dénaturé" (methylated spirit). The Agricultural Department takes great interest in this, and is anxious that alcohol should be extensively used for locomotion and illumination. The cost of asbestus cones and a dread of the danger if the lamp were upset have hitherto prevented it from being much used for domestic lighting, and automobilists complain that commercial spirit is not easily obtainable except in the large towns. On the whole, it does not appear probable that alcohol will ever supersede petroleum as a combustible.

JOHN K. GOWDY,
Consul-General.

PARIS, *December 20, 1902.*

REPAIRING AËRIAL WIRES BY AUTOMOBILE IN FRANCE.

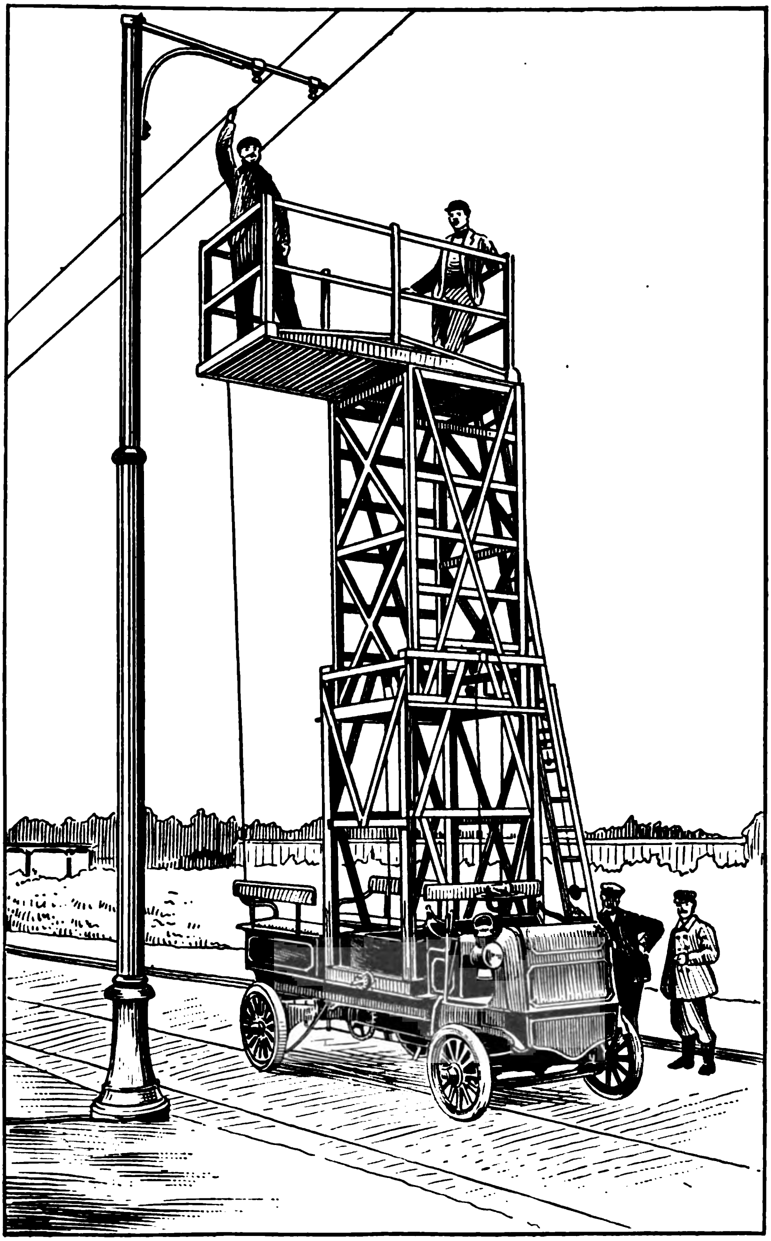
La Compagnie de l'Est Parisien has recently had constructed an automobile, capable of carrying six workmen and 500 kilograms (1,102.3 pounds) of material, for the purpose of repairing its aërial wires. The platform of this vehicle when raised can support two workmen at the height of 6 meters (19.685 feet) and allows them to work without interfering with the passage of tram cars, the platform being changeable either to the right or left side. With this machine, 10 to 12 kilometers (6.21 to 7.456 miles) of wire can be attended to in one hour. The motor of this vehicle is horizontal, with two cylinders. It is of 12 horsepower and is placed in front.

The accompanying illustration shows the apparatus open; when closed, the height is that of the lowest section. The railings of the platform fold down.

The Automobile Revue of Paris gives figures as to the economical superiority of this device over that of animal traction, from which it appears that the former is 50 per cent cheaper than the latter.

THORNWELL HAYNES,
Consul.

ROUEN, *December 15, 1902.*



RAILWAY AUTOMOBILES IN EUROPE.

Consul Marshal Halstead, of Birmingham, calls attention to articles in the London Times of December 13 and 18, which are summarized below:

FRANCE.

On June 18 next, at 8.50 a. m., there will start from the Lyons station, in Paris, a train composed of three "autonomobile" carriages—that is to say, carriages that are both autonomous and motor cars—which will enter the Dijon station at noon. The 315 kilometers (195 miles) between Paris and Dijon will thus have been covered in three hours and ten minutes, or at a normal speed of 100 kilometers (62 miles) per hour; and the same speed may be maintained between Dijon and Lyons, Lyons and Marseilles, Marseilles and Nice, and Calais and Paris uninterruptedly, so that the distance between Calais and Nice can be covered in fourteen hours.

This invention is now neither a project nor an experiment, but exists and works, and its application is merely postponed for some months for the construction of the actual rolling stock. To form an accurate idea of the attention which this new mode of traction and locomotion calls for it will be sufficient to say that the eminent firm of Gardner & Serpollet undertakes the construction and organization of the autonomobile carriages.

Let me now briefly explain the transformation which, with the progressive developments in proportion to the construction of the carriages and the resources of the companies, the conveyance of passengers will undergo. First of all, as its name indicates, the autonomobile supersedes the locomotive—that is, it dispenses in every train, short or long, slow or fast, with a weight of 110 tons. It saves the considerable cost of locomotives. It abolishes smoke, steam, noise, vibration, the jolt incidental to stopping and starting, and the necessity of stopping to take up water. It also abolishes all the men in charge of a locomotive except the engine driver. The new carriage is 17 meters (56 feet) long—that is to say, the length of the present corridor carriage. Of these 17 meters, a space of 2.6 meters (8.5 feet) in front is occupied by the traction apparatus, while the remaining 14.4 meters (47.5 feet) will comfortably accommodate 40 passengers and the 1,200 kilograms (2,645 pounds) of luggage allowed them. The cost of the autonomobile is the same as that of the first-class corridor carriage, while the weight, including the traction apparatus, is also the same. Thus the abolition of the locomotive is an accomplished fact, and the rails which now have to bear the weight of the locomotive and tender as well as of the carriages are relieved therefrom.

The system is one which, in an embryo form and dating back several years, has been applied to short and fast tramway lines, but never to practically unlimited distances. While not, perhaps, using the technical expressions which would be employed by a specialist, I believe I am not mistaken in stating that by means of the slightest possible quantity of petroleum the smallest possible quantity of water can be converted into the greatest propelling power of steam which can be produced. The extremely powerful vapor thus obtained acts directly on the wheels of the autonomobile. Of course the petroleum is consumed, but the water, first transformed into vapor, condenses afresh, reverts to its original condition, and is then more easily transformed into steam, because it retains its heat. Thus, though the petroleum has disappeared, the water remains, which in temperate climates is of no inconvenience and in dry countries is of priceless value. Consequently, in front of every autonomobile is an apparatus producing with a liter of petroleum per kilometer (1.05 quarts per 0.62 mile) the steam power requisite for propelling the carriage with its 40 passengers and 1,200 kilograms of luggage at a normal and almost minimum speed of 100 kilometers (62 miles) an hour, and that, too, without interruption, noise, or jerk. In order to overcome the air resistance which such a speed entails, the autonomobile in front and behind is so shaped as to cut the air, which thus becomes an auxiliary rather than an obstacle. As each autonomobile has its own apparatus, the carriages, of course, might go singly as easily as when coupled together. I may add that the weight of the apparatus, apart from the petroleum and water carried, is trivial. As to the latter, to go from Paris to Nice 1,100 or 1,200 kilograms (290.5 or 317 gallons) of petroleum and 4,000 or 5,000 kilograms (1,056 or 1,321 gallons) of water will be required. This will allow of the whole journey being made without a stop; only care must be taken to guard against overheating.

ENGLAND.

The Northeastern Railway of England is building at its York works two auto cars to run on its railway, each of which will carry a complete apparatus for generating its own motive power. At one end of the car there will be a Napier petrol engine of 85 brake horsepower, with 4 cylinders. This engine will drive a dynamo generating electricity for 2 motors, which will apply the power to the wheels of the "bogie" underneath the engine compartment. Two of these 4-wheeled "bogies," of practically the normal railway-carriage type, will carry the framework of the car, but the body will be much lighter than that of an ordinary carriage, approaching closely to the tram type. In fact, the vehicle will be a tram saloon, with an engine compartment at one end and a conductor's compartment at the other. Seating accommodation will be provided in each car for 52 passengers; and, as storage is provided for 30 gallons of petrol, it is anticipated that the automobile will be able to work five hours at a stretch without replenishing. It is calculated that by this system a speed of 30 miles an hour can be got up in as many seconds, which is a very much quicker acceleration than is possible with an ordinary train. It is not proposed to use these auto cars at first for the longer distance traffic of the Northeastern Railway, but to employ them rather for accelerating the service on those sections of the system where an ordinary train can only make a slow rate of speed, owing to the number of stopping places.

AMERICAN LOCOMOTIVES IN ENGLAND.

AMERICAN LOCOMOTIVES.

The tendency on the part of the State railway authorities in Australia to import locomotives from America and Germany has just received a check, in consequence of the publication of the correspondence between the Indian government and a number of British manufacturers, in which it is shown that, although the German locomotives could be produced more cheaply and rapidly than in Great Britain, the materials and workmanship were of an inferior character. It would seem as if the determination of the Indian government to have the locomotives required for the government railways made in England will be followed by the State authorities in Australia. This has occasioned local representatives of the leading American locomotive-building firms to renew their efforts to secure orders; but so far their success has not been overencouraging, it being found that the American locomotives consume more coal and possess less drawing power than those of British manufacture. Of course, there are exceptions, but these simply prove the rule.

The foregoing article on "American locomotives," that being the headline used, is clipped from an Australian letter in the November 20 issue of Sell's Commercial Intelligence. It was eighteen or twenty months ago that the world heard of the big foreign sales of American locomotives, and there has since been a most persistent attempt to prove that these locomotives are inferior to those of foreign—particularly of English—manufacture; and either our locomotives are inferior, as stated, or there has been a deliberate and unfair crusade against them. From a businesslike way of looking at the matter, it seems singular that American railroads can carry freight so much more cheaply than can railroads in other countries if our locomotives are deficient.

The agitation began when it was announced (and our manufacturers are perhaps too free in announcing such matters) that we had obtained several large orders in England. So great was the feeling here about the purchase that railway directors had to apologize to their shareholders for purchasing American-made articles, although these shareholders were interested in having articles bought at the lowest prices. Shortly afterwards, cablegrams were printed in London papers stating that even the railway authorities in Switzerland had found American locomotives unsatisfactory in fuel consumption, etc. I wrote at once to an American locomotive-manufacturing company, and in their reply—and they had every reason to be well informed—the managers said that, as far as they were aware, no American locomotives had ever been sent to Switzerland, and that no basis for a comparison existed in that country. So far as the British market was concerned, they said they had endeavored for two years to ascertain what satisfaction their engines were giving, but they had never been furnished with an official statement; unofficial reports, however, had all been of an extremely satisfactory character. They thought that "either the work in which the American locomotives had been employed was not comparable to the work of the British locomotives, or the conditions of the locomotives themselves were not to be compared, as the difference in fuel consumption could hardly be so great as stated." They added:

> We were informed that during the recent coal famine in London, when the train loads were increased about 10 per cent, our locomotives were able to meet the increased demand upon them and showed an economy of coal consumption, notwithstanding the increase.
>
> The materials employed for fire boxes and tubes are identical in the American and English locomotives. The American locomotives were provided with grate bars of the standard pattern of the railway for which they were intended, and the only difference which there could be in the consumption of steam, therefore, must result from a difference in the work done or the attention the locomotives received. American locomotives are designed to obtain the maximum efficiency possible for

their weight and heating surface, because from the American point of view the highest efficiency of the machine as a whole is the highest operating economy, even though there might be a slight difference of fuel consumption. By this we mean that, by making certain changes in the valves, it would be possible to reduce considerably the amount of steam used, and consequently the amount of fuel consumed, but this would be attended by a corresponding reduction of efficiency. An increase in efficiency carries with it an increase in earning power for the railway altogether out of proportion to the slight increase of fuel consumed. We are inclined to think that English locomotive officials and English builders seek to obtain the maximum economy in the machine itself, without respect to the larger considerations which govern the American practice. Were the valve motion of our locomotives slightly altered, as we have indicated, we feel sure that the fuel consumption could be reduced so as to compare favorably.

This letter was written in 1901. The crusade against our locomotives continues, and our builders disdain to protect themselves by publication. It seems to me that a British-made locomotive of the best type should be purchased and run as a test on some American railroad; and I hope an English engine driver, selected by the manufacturer of the engine, may be given charge of it, as a mere matter of fairness.

MARSHAL HALSTEAD,
Consul.

BIRMINGHAM, *December 5, 1902*.

IRON AND STEEL TRADES IN SCOTLAND.

In a review of the pig-iron trade in 1902, a writer in the Scotsman says that American demand and American reports have dominated the pig-iron markets of the whole world, to the exclusion of all other influences, and that the iron market must now look to America for guidance, as she has proved her power of taking on her shoulders the burden of what threatened to be an almost universal European depression and converting it into a semblance of prosperity. He goes into details:

Russia, hitherto a pig-iron-importing country, exported to America this year over 32,000 tons of pig iron, Germany sent her immense quantities of pig iron and manufactured steel, even France contributed supplies, and Cleveland, west coast hematite, and Scottish pigs owe all their advances and their present stability entirely to America. When figures are published at the end of the year, it seems a safe guess to say America will have absorbed from Europe a total of considerably over 1,000,000 tons of pig iron, manufactured iron, and steel, and this in addition to the consumption of her own enormous production, which should reach over 18,000,000 tons this year. To Germany this unexpected demand must have proved an unmixed blessing, rescuing her from what was fast approaching a commercial crisis.

Admiration can not be withheld from the Americans for the sensible, calm way in which their purchases have been effected throughout the whole year. Purchases even mildly approximating to the present totals would in former years have sent the pig-iron markets wild with excitement, but this year it would appear almost as if America's total purchases were directed from one office desk, so judiciously have her demands been regulated and spread over the various markets at her disposal—buying one week in Germany, the next week here, and always allowing a market to get repose whenever it appeared to get excited over her purchases.

America still continues to purchase fair quantities here and there, and it is quite certain that well into March next extensive shipments from European ports must take place on her account. But the question is ever being asked, At what period will this American demand cease? Only about two years ago America was flooding the Continent and Great Britain with her pig iron and manufactured steel, and the argument is permissible that the enormous increase in America's production which has taken place in response to her sudden burst of prosperity must sooner or later overtake her consumption and perhaps leave something to spare for export.

In regard to the steel trade, he says that this branch of industry has been fairly prosperous, but the prospects are not bright. One paragraph contains the gist of his report:

Trade in the northeast of England is in a most depressed condition. This has a reflex action here, and while manufacturers in Scotland are, as a rule, better employed and have their order books better filled, still, if there was a cessation of buying from Canada and America, it would aggravate matters considerably. The American demand has not yet ceased, but it is less than it was. A fall in prices would probably induce fresh work both in shipbuilding and other directions, though, unfortunately, in shipbuilding, on which the steel trade largely depends in this country, the prospects are not good, freights being so low that there is no inducement to shipowners to build new cargo steamers.

Of the state of the malleable-iron industry, this expert takes a somewhat gloomy view:

The year now closing has brought no relief to the malleable-iron trade in Scotland. It has been saddled with dear fuel, and the costs of raw material have been exceptionally high. This has been due chiefly to the boom in the steel trade in America, which had the effect of raising prices here. While thus the trade has had to contend with abnormally high costs, it has, on the other hand, had to face a very low demand for the finished article. In the last month or two some of the malleable-iron works have not been able to keep going more than half time, and in the case of at least one considerable establishment notice has been given to the workers of the contingency of complete stoppage. There can scarcely fail to be a reaction, and there are some who think that the begining of the year will see a change for the better.

The situation is perplexing, and he would be a bold man who would venture to forecast the future with any degree of assurance.

RUFUS FLEMING,
Consul.

EDINBURGH, *December 30, 1902.*

JOINT-STOCK COMPANIES IN SCOTLAND.

This year 256 limited-liability companies have been organized in Scotland with a total capital of £7,762,220 ($37,774,800), as against 202 companies in 1901 with a total capital of £5,512,142 ($26,924,800). Of the companies registered last year 60 per cent were private concerns—*i. e.*, the shares were not offered to the public. In 1902 the percentage of private concerns is more than 70. The following comparative table sets forth the different industries in which company promoting has taken place during the past twelve months:

Description.	1902.			1901.		
	Companies.	Capital.		Companies.	Capital.	
Chemical and oil companies	2	£1,550,000	$7,543,000	6	£373,000	$1,815,200
Investments and property	27	1,081,750	5,264,300	23	448,500	2,182,600
Gold mining	9	961,000	4,676,700	11	350,000	1,703,300
Iron and steel trades	33	888,600	4,324,400	28	1,072,750	5,220,500
Shipping and fishing	28	500,050	2,433,500	31	876,392	4,265,000
Textile trades	13	767,000	3,732,600	12	545,000	2,652,200
Building and contracting	13	207,000	1,007,400	7	114,000	554,800
Copper mining	3	185,700	903,700	....	....	....
Insurance	6	164,000	798,100	1	4,000	19,500
Hotels, clubs, etc	13	163,700	796,600	19	221,200	1,076,500
Brewers and distillers	6	154,070	749,800	3	351,000	1,708,100
Printers and stationers	10	124,500	605,900	9	162,200	789,300
Timber companies	4	123,000	598,600	1	100,000	486,700
Theatrical and musical	10	111,500	542,600	3	18,500	90,000
General merchants	10	107,500	523,100	2	65,000	316,300
Agricultural companies	5	104,000	506,100	....	....	....
Paint manufacturing	4	92,000	447,700	....	....	....
Coal mining, etc	7	86,500	421,000	10	224,600	1,093,000
Educational companies	6	64,000	311,500	....	....	....
Grain merchants	4	64,000	311,500	....	....	....
China and earthen ware companies	3	55,000	267,700	....	....	....
Tea companies	2	35,000	170,300	1	9,000	43,800
Lighting companies	5	33,450	162,800	1	20,000	97,300
Laundries	4	27,500	133,800	3	26,000	126,500
Bakers, etc	5	27,500	133,800	1	15,000	73,000
Aërated-water companies	5	19,700	96,000	3	48,000	233,600
Sporting-goods companies	5	2,000	9,700	2	1,000	4,900
Miscellaneous	14	62,000	301,700	25	467,000	2,272,700

How greatly the registrations of companies and their gross capitals have fluctuated is apparent from the appended figures for the past five years:

Year.	Number of companies.	Capital.	
1898	389	£20,661,058	$100,547,000
1899	334	13,683,669	67,564,900
1900	345	12,401,613	60,352,500
1901	202	5,512,142	26,924,800
1902	256	7,762,220	37,774,800

RUFUS FLEMING,
Consul.

EDINBURGH, *December 30, 1902.*

MANCHESTER EXPORTS TO THE UNITED STATES.

Consul W. F. Grinnell sends from Manchester, January 3, 1903, tables of the exports of cotton yarn and cotton velvets, cords, and fustians from that district to the United States for the years 1901 and 1902, as shown below:

Exports of cotton velvets, cords, and fustians to the United States during the years 1901 and 1902.

Month.	1901.			1902.		
	Dyed.	Undyed.	Total.	Dyed.	Undyed.	Total.
	Yards.	*Yards.*	*Yards.*	*Yards.*	*Yards.*	*Yards.*
January	353,937	452,702¾	806,639¾	509,942¾	596,615¼	1,106,558
February	314,416¾	713,484	1,027,900¾	307,672¼	451,680	759,352¼
March	281,870½	590,215½	872,086	240,991¾	600,696¼	841,688
April	288,669¾	497,383	786,052¾	497,447	612,065¾	1,109,512¾
May	536,286½	487,560¼	1,023,846¾	943,150¾	598,911¾	1,542,062½
June	631,556½	579,866	1,211,422½	949,819¾	652,024½	1,601,844¼
July	883,679	800,448¾	1,684,127¾	1,182,724¼	540,662¼	1,723,386½
August	804,003½	712,905¾	1,516,909¼	1,106,342	680,325¼	1,786,667¼
September	810,397¾	659,753¾	1,470,151½	908,392¾	585,963¾	1,494,356½
October	779,816½	467,819½	1,247,636	897,115¼	560,587¾	1,457,703
November	536,797½	521,376¼	1,058,173¾	366,375½	528,049¾	894,425¼
December	408,131	277,179¾	685,310¾	274,821½	280,510¼	555,331¾
Grand total			13,390,257½			14,872,888

Exports of cotton yarn to the United States during the years 1901 and 1902.

Month.	1901.	1902.
	Pounds.	*Pounds.*
January	199,654¼	288,295
February	171,054¾	227,256¼
March	185,180	284,520
April	156,445¼	285,515
May	180,184¼	335,206
June	170,864¾	243,353
July	173,941½	274,416¾
August	183,475½	210,059½
September	174,320¼	265,158¼
October	310,313¾	326,102¼
November	265,993½	261,302
December	232,393¾	320,324¾
Total	2,403,821½	3,321,508¾

GREAT BRITAIN'S BEEF SUPPLIES.

The news that the foot-and-mouth disease has broken out in the New England States and that exports of cattle therefrom have been prohibited by our Department of Agriculture, together with the simultaneous action of the English authorities in forbidding imports of cattle from the infected localities, has caused some apprehension touching the beef supply in this country and has led to inquiry into the sources thereof. The results of the inquiry are somewhat unexpected to many people, and are calculated to dissipate the rather widespread impression that the "roast beef of Old England" is supplied by the prairies of our West and the shambles of Chicago.

Previous to 1860, all imports of beef into the United Kingdom were live cattle. Since then, thanks to the refrigerator system, those imports have become mostly dressed beef. Taking each head of cattle as of 6 cwts.—the usual assumption in this country—the statistics of imports (taking five-year averages) are:

Years.	Annual beef imports.		
	Fresh beef.	Live cattle.	Total.
	Cwts.	*Cwts.*	*Cwts.*
1861-1865	15,772	1,055,075	1,070,845
1866-1870	27,289	1,169,683	1,195,563
1871-1875	34,421	1,295,940	1,330,361
1876-1880	489,223	1,646,570	2,135,793
1881-1885	773,460	2,324,632	3,098,159
1886-1890	1,108,013	2,628,588	3,735,501
1891-1895	2,020,668	2,688,834	4,709,502
1896-1900	3,340,386	3,298,908	6,639,294
1901	4,508,746	2,973,804	7,482,550

Of the 2,973,804 cwts. which came to Great Britain in 1901 in the form of live cattle, 2,434,318 cwts. were from the United States and 539,486 cwts. from Canada.

No absolutely accurate figures of beef production in the United Kingdom are obtainable, though they are now being prepared; but practically correct statistics show that 19,140,302 cwts. of beef were obtained from domestic cattle slaughtered in this country in 1901. This is believed to be below the mark, if anything. The following table results:

Description.	Quantity.	Per cent.
Imported:	*Cwts.*	
Fresh beef	4,508,746	18.3
Live cattle as beef	2,973,804	11.1
Total imports	7,482,550	29.4
Home produced	19,140,302	70.6
Total supply	26,622,852	100

Thus it appears that 700 out of every 1,000 pounds of beef consumed in Great Britain are home produced, and that of the remaining 300 pounds 183 pounds come to the British Isles as refrigerated beef and 117 pounds as live cattle.

In the aggregate, these sources of supply are important; but an especially significant consideration is that the live-cattle supply from abroad—wherein alone danger to the home stock lurks—is quite small in comparison not only with the British home production, but also with the oversea supply as a whole. Furthermore, the imports of live cattle can presumably be readily replaced by refrigerated stock, thus obviating all discomfort to the population of the British Isles, if prohibition of live-cattle import were absolute and permanent.

An outbreak of the foot-and-mouth disease in this country would, it is obvious, be peculiarly disastrous, not only greatly enhancing the price of both beef and milk, but causing enormous loss to industrial and commercial interests. Such was the experience during the last epidemic of the disease in Great Britain, which lasted from 1880 to 1884. The prospect of the recurrence of that calamity would cause dismay from the Orkneys to Land's End.

FRANK W. MAHIN,
NOTTINGHAM, *December 16, 1902.* *Consul.*

THE VALUE OF RATIONAL METHODS IN COKE PRODUCTION.

Notwithstanding all that has been written and said on the subject, and despite the several convincing object lessons which are now in operation in the United States to show the economic value of the retort oven in coke manufacture, an overwhelming percentage of American coke is still made in the primitive "beehive," or open-mouthed, ovens, by which the volatile elements of the coal—averaging, roughly, 40 per cent of its value—are poured out as waste to blacken and defile the surrounding country.

Germany adopted, many years ago, a more rational and economical system, and it was largely through the saving thus achieved that

German iron and steel was enabled to invade the British and other foreign markets. From statistics kindly furnished to this consulate by the German Tar-Selling Syndicate—an association of coal and coke operators organized for the uniform sale of the secondary products of coke manufacture—the following facts are derived, which throw an interesting light upon the cash value of a rational scientific system of coke production. It should be remembered that much of the soft coal of Germany is of a "lean" grade, so poor in volatile elements that the use of expensive retort ovens for coking it would not be justified.

But from the report cited, it appears that the firms and companies included in the syndicate produced coke in 1901 as follows:

	Tons.
In the Ruhr district (Westphalia)	10,000,000
In Silesia and Saxony	1,820,000
In Aix and Saar districts	1,200,000
Total	13,020,000

Of this whole amount, 6,900,000 tons of coke, or slightly more than one-half, was made in retort ovens, almost all of the Otto-Hoffman type, which, besides saving the gas generated by the coking process, recovered other secondary products which were valued as follows:

Tar	$1,237,600
Sulphate of ammonia	4,247,300
Benzole	1,175,720
Total	6,660,620

Reckoning the value of the 6,900,000 tons of coke thus produced at 13 marks ($3.09) per ton, which was the mean average rate for blast-furnace coke during the year under consideration, we have the following interesting exhibit: Six million nine hundred thousand tons of coke valued at $21,321,000; tar, ammonia, and benzole derived therefrom, $6,660,620.

Unfortunately, there are no exact statistics from which the value of the gas saved by the retort ovens and used for steaming, heating, and illuminating purposes can be derived, but it would be a conservative estimate to assume that the gas was worth at least one-fourth as much as the coke, and that the aggregate value of all secondary products—gas, tar, ammonia, and benzole—was not less, but rather more, than one-half that of the coke, which under the "beehive" system is the sole marketable product obtained. A process of manufacture which not only renders a coking plant as clean and free from smoke as an ordinary factory, but adds 50 per cent to the value of its products, would seem worthy of general adoption even in a country of such vast and cheap resources as the United States.

FRANK H. MASON,
Consul-General.

BERLIN, *December 30, 1902.*

WATER POWER IN FRANCE.

An event marking a new era of prosperity for Grenoble and the region of the Dauphiné was the holding in September of this year of a "white-coal" convention. More than 500 prominent men of science—engineers, polytechnists, mill owners, and manufacturers—from France and other countries assembled in the chamber of commerce building and devoted their time to a thorough discussion of the utilization of the water power of the glaciers and mountain streams of Alpine France. During the week excursions were made in different directions within a radius of 50 miles to inspect the score or more of factories, where the water is already utilized for the generation of electricity, the making of paper, soda, aluminum, acetylene, and chemical products of various kinds, and in general for the distribution of force.

The railroads of France (25,000 miles) employ about 4,000,000 horsepower and the other industries about 2,500,000 horsepower—a total of 6,500,000 horsepower produced by steam. M. Bergès estimates the hydraulic forces of France in her mountainous regions to be 10,000,000 horsepower. Even at a much reduced estimate, the measure of industrial development possible can readily be seen.

The streams and cascades have been used to a certain extent for years, but not until recently, under the leadership of such enterprising men as Bergès and Joya and Desprez, has this water been "canalized"—conducted by huge pipes from vast heights down the mountain sides—and, with the aid of turbine wheels, made to develop tens of thousands of horsepower and to distribute energy, heat, and light in all directions.

It is a striking fact that the mighty energy cradled in the glaciers of the mountains and lying dormant through the centuries should be suddenly set free and made to turn the wheels of a hundred industries to meet the needs of man. The glaciers are a mine of "white coal" which, unlike the product of the earth, is inexhaustible, renewing itself from year to year. In 1863, it was deemed a bold achievement to bring water from a height of 260 feet, as at Uriage; but now M. Bergès has succeeded in canalizing a fall of 1,640 feet and another of 1,804 feet. At Epierre (Savoiè), M. Joya used a fall of 1,935 feet and at Chapareillan (25 miles from Grénoble) another of 2,040 feet—until this year said to be the highest single fall in the world.*

At Lancey, a few miles northeast of Grenoble, the water which gives power to mills of various kinds and to the electrical plant which lights the valley of the Graisivairdan and maintains its several tramway systems is brought by three successive falls whose total is 6,560 feet.

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*The highest is at Vouvry, in Switzerland—3,018 feet.

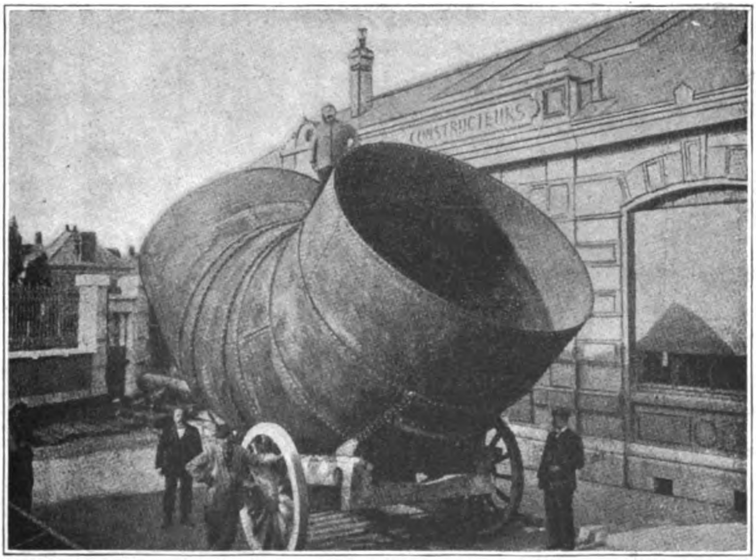
Light is furnished to the houses and farms of the vicinity at a very moderate cost; for example:

First lamp, 10 candlepower	per year	$4.82½
Second lamp, 10 candlepower	do.	2.89½
3 lamps of 5 candlepower each	do.	2.89½
Total for 5 lamps, 35 candlepower		10.61½

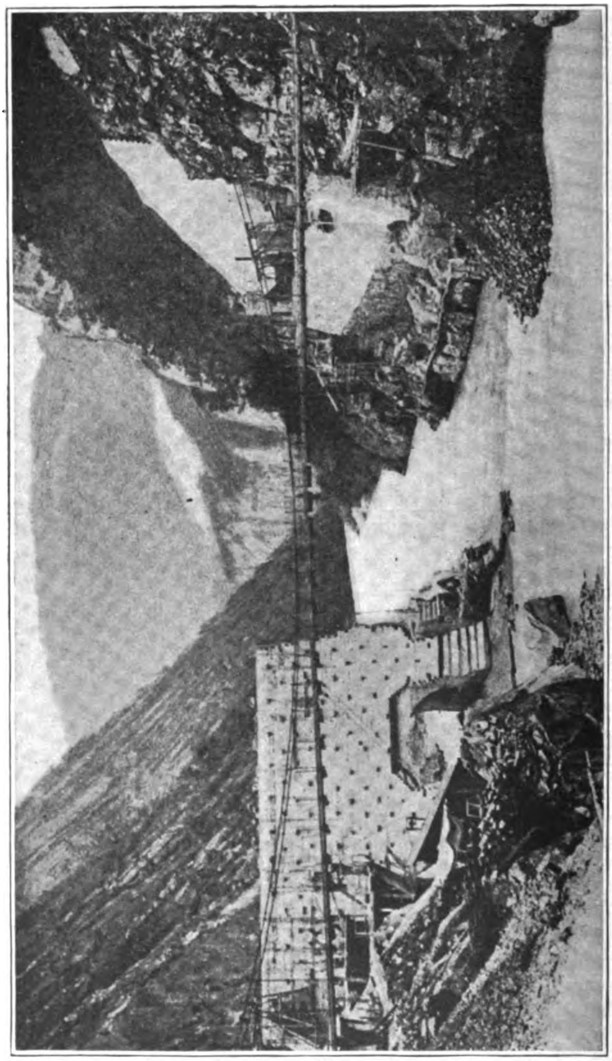
An average of $2.12 per lamp per year.

Starting from the little lake of Domênon, among the snows of the peak of the same name, the water is drawn by pipes which tap the lake at its bottom and is carried to a lake lower down the mountains, and from this still farther down to a third lake, whence the conduits bear it, always at a certain gradient, to the factories below, where it yields an equivalent of 10,000 horsepower.

As illustrating the enormous pressure of the water thus canalized, the pipes in many cases (as below) are as much as 3 meters 30 millimeters, or 10.83 feet, in diameter. The tunnel under the Thames at London has a diameter of about 11 feet, but this is for a distance of 30 meters, or 98½ feet, only. The Société Hydro-Électrique de Fure et Morge at Grenoble, which utilizes the waters of the torrent Drac, near Vizille, has 4,600 meters, or 15,092 feet (of which 8,200



SPECIMEN PIPE, 10.83 FEET IN DIAMETER.



CONSTRUCTION OF DAM ON THE DRAC.

feet are in steel plates and 6,892 feet in wired cement), of piping with a diameter, as stated, of 10.83 feet.

This installation permits the distribution of force to the extent of 3,500 horsepower, under a tension of 26,000 volts, for a distance of 40 miles to factories in Moirans, Voiron, and Rives.

Grenoble will soon be lighted by electricity, the power being supplied by the Electro-Chemical Society of the Romanche, which has its works in the village of Livet (altitude 1,794 feet), 27 miles distant from this city. The valley of the Romanche was, until recent years, sparsely populated; to-day, within a distance of 12 miles, there are already installed six establishments for the making of paper, wood pulp, acetylene, aluminum, etc., and for the generation of electric force.

The stream itself is fed by the powerful glacial reservoirs of the Massifs of the Belledonne and the Pelooux—ranges of mountains (in altitude from 9,800 to 13,000 feet) on either side of the valley; in winter and summer alike, this water supply is unremitting and abundant.

With Grenoble thus lighted as it were by the melting snows, and furnished with a new motive force for turning its industrial wheels, it may well deserve its title of "the White Coal Capital."

C. P. H. Nason,
Consul.

Grenoble, *December 4, 1902.*

THE SIMPLON RAILWAY.

Consul Richmond Pearson sends the following from Genoa:

I have recently made a visit to the Simplon, in order to ascertain the character and progress of this stupendous undertaking, whose success or failure means so much for the future of Genoa.

In my report of last March,* upon the authority of an American engineer, I stated that such serious obstacles had been encountered in the south side of the tunnel that no progress was being made, and that the location of the line would probably have to be changed.

My examination, on the spot, removed all doubts on this score. The work is progressing rapidly in the tunnel on both sides of the Alps; about 4,000 workmen are employed in the tunnel, and not less than 6,000 on the Italian section of the road between Isella, at the mouth of the tunnel, and Arona, the present terminus of the railway running north from Milan. It is now practically certain that the road will be completed within the estimated time—that is to say, by July 1, 1905—as nearly two-thirds of the tunnel was finished on

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* See Commercial Relations, 1901, Vol. II.

July 1, 1902, and the worst obstacles have already been met and mastered. The greatest of the impediments was the ever-increasing heat in the tunnel, caused by the growing volume of water, which, although it starts at the summit of the mountain, 6,000 feet above the line of railway, after percolating through beds of limestone, becomes almost boiling hot and flows into the tunnel at a temperature of from 112° to 140° F., rendering not only work but life impossible without resort to artificial means of refrigeration. The engineer, by turning cold air on hot air and cold water on hot water, has reduced the temperature in the tunnel from 140° to 70° F.

The volume of water flowing out of the south end of the tunnel is over 15,000 gallons per minute and furnishes motive power sufficient not only to work the refrigerating apparatus, but to compress the air by which the drills are operated.

This tunnel, when completed, will be the largest in the world—to wit, 14 miles long, or twice the length of the Mont Cenis and 5 miles longer than the St. Gotthard. The cost of the tunnel alone will be 70,000,000 francs ($13,510,000), an average of nearly $1,000,000 per mile.

ROUEN-AMERICAN STEAMSHIP COMMUNICATION.

In answer to the recent report from this office concerning gypsum,* there came many letters to the Rouen firm mentioned therein from parties in America wanting samples, some even ordering several tons for trial and others asking for freight rates from Rouen to Philadelphia, Baltimore, and New York, and showing every possible interest in the matter. The firm dealing in this plaster says it would be able to ship it from Rouen to Philadelphia c. i. f. at 17.50 francs ($3.38) per ton, but unhappily no ships are here to take it, and because of this the Rouen firm and American buyers are prevented from making a mutually profitable exchange. To ship the same article via Havre would cost to New York c. i. f. 24 francs ($4.63) per ton, a difference of 6.50 francs ($1.26) in favor of this port—a difference great enough, in many instances, to determine between a profitable business and no business at all.

The greatest objection urged against the feasibility of vessels plying between Rouen and an American port is that such vessels would be compelled to leave the former port in ballast. Is this true?

Nearly $39,000,000 worth of merchandise was shipped from Paris to the United States during the fiscal year ended June 30, 1901. The cheapest route for these goods would have been by fluvial transit to Rouen and thence to America, if the line spoken of had been in existence. It may not have been the quickest route, but it certainly would not have been the slowest. Still, in examining the list of this $39,000,000 worth of merchandise, I do not find a single perishable article that would have necessitated quick transit. There are jewels and art works and articles de Paris that would have been hardly preceptible as a cargo; but on the other hand there were shipped hides, skins, and leather to the amount of $3,375,541; furniture and household goods, $1,292,304; upholstery and wall paper, $1,021,117; dress goods, $2,937,711; cotton goods, $374,671; hardware (machines), $546,504; linen goods, $506,952; platinum, $351,623; preserved fruits and vegetables, $272,881; etc.—quite enough, it seems, to furnish cargo for a regular line between Rouen and America. Why should these goods be transported from Paris to the coast in railway cars and put into vessels at Havre, or sent by way of Liverpool and other English ports to be transferred again into ocean-going vessels? For England, Norway, Sweden, Russia, and other countries, Rouen is the seaport of France; why should it not be so for the United States? It is within thirty-six hours by water of the capital, which has a market of more than 2,500,000 consumers, and it has a harbor lined on both sides by two great railway systems. The same vessel can unload into lighters or barges on the river side for canal delivery as far south as Nice and even to Belgium and Germany, and at the same time from the other side into railway cars for the interior, or upon the quay for Rouen consumption.

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*Advance Sheets No. 1482; Consular Reports No. 267 (December, 1902).

As far as cargoes from America to Rouen are concerned, plenty of them could be found. The principal industry of this district is cotton-goods manufacturing. The Rouenaise textiles are famous all over. It would appear strange if the raw material for this industry could not be brought direct from the field of production. Rouen brokers, spinners, and manufacturers would of course give their hearty support to a movement in this direction, for all cotton now consumed here, with the exception of a little Indian cotton that comes here by way of London, is brought from Havre. Apropos of this, I am told by a Rouen cotton broker that if the cotton dealers in the United States could offer the same conditions of sale to Rouen as to Havre buyers, there would be a market here for 150,000 bales annually.

The time may be distant, or it may not, when American coal will come into northern France, and when it does no port will offer advantages superior to those of Rouen for its entry. Here, the salt and fresh waters mingle, and the latter affords the cheapest transit possible all over France. Some weeks ago, an important American export house wrote to this office saying that, as soon as conditions admitted getting coal to the seaboard, it wished to see what could be done toward entering coal here.

Should the project mentioned prove of interest, I will, if desired, furnish details concerning the advantages possessed by Rouen, the capacity of the port, depth of water, interior canal facilities, freight rates by rail and water, connection with Paris, brokerage and pilot fees, etc.

THORNWELL HAYNES,
Consul.

ROUEN, *January 7, 1903.*

SAND BRICKS IN FRANCE.*

The manufacture of bricks from mortar—that is to say, sand and lime—was first practiced at least half a century ago. In 1900, Messrs. Ch. Gerard & Meurer took out a patent which is still in force, and the inventors are quite willing to sell manufacturing rights for other countries.

The materials used are sand, lime, clay, and alkalies. The sand must be clean, "bite" well (*i. e.*, must crackle when pressed between the fingers), and be neither too fine nor too coarse. The lime should be freshly made. It is used just as it leaves the kiln. For the clay, a loam answers better than a pure clay. The alkalies used are caustic potash or soda, or alkaline salts, such as carbonates, bicarbonates, silicates, sulphates, or chlorides.

The lime should be from 6 to 10 per cent, by weight, in proportion to the sand; and the clay 30 to 100 per cent, by weight, in proportion to the lime.

The sand is dried at a temperature of about boiling point. The lime is reduced to a fine powder, and both it and the sand are automatically weighed, to obtain the exact proportions, and then taken in elevators to a mixing machine, where they are mingled with hot water, sprayed in fine jets under strong pressure. When thoroughly mixed, the compound is removed to a "silo," where it remains for some time. The clay is dried and powdered in a separate machine, and the proper proportions of (*a*) the lime and sand and (*b*) the clay are automatically admitted into a small mixing machine, where they are again mixed with hot water in fine spray. In a few minutes, the mixture is ready to be molded into bricks. The pressure applied is considerable, as upon this depends the strength of the brick. A press makes five bricks at a time, and the process takes nine seconds—that is to say, it turns out 2,000 bricks per hour.

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*Report made in answer to inquiries by a resident of Michigan, to whom ADVANCE SHEETS have been sent.

The bricks, as fast as they are made, are placed on an endless band and taken away to be hardened.

The bricks are arranged on tables placed round the piston of a hydraulic press and lowered into a bell-shaped stove. The top table forms a lid, which the hydraulic pressure makes practically air tight. In this stove, the bricks are exposed to superheated steam, at a pressure of from 80 to 140 pounds to the square inch, for about six hours, and are then ready for use. Sometimes, a kind of glaze is given to the bricks by immersing them for a few minutes in a weak solution of fluoric acid before baking.

The inventors claim that in durability, finish, appearance, and hygienic properties sand bricks are greatly superior to those commonly used. If made where sand is easily procurable, the cost would not exceed that of the ordinary bricks. Sand bricks can certainly be made much more rapidly, and nearly all the work is done by machinery—an important item where labor is expensive.

JOHN K. GOWDY,
Consul-General.

PARIS, *December 18, 1902.*

UNITED STATES TRADE WITH FRANCE.

The following extracts are from the annual report of Consul A. M. Thackara, of Havre, to be printed in full in Commercial Relations, 1902:

To form an idea of the many different varieties of American goods which are brought every week to Havre by the French Line, one has only to glance at the manifest of one of its steamers. The *Touraine*, on one of its recent voyages, landed the following merchandise, nearly all of which was of American production, viz, dried apricots, dynamos and other electrical apparatus, typewriters, couplings, asbestus, silverware, household articles, photographic apparatus and materials, phonographs, oars, bicycles and parts, jewelry, refined oil, wheat, parquetry, cigar boxes, watch cases, watches, sausage casings, cocoa, coffee, picture frames, rubber, carbon, blacking, chairs, shoes, canned beef, canned soups, water meters, seashells, leather, electrotypes, ink, machine gears, cash registers, flour, steel and iron wire, insulated rubber wire, furs, air guns, grease, gilsonite graphite, lubricating oils, printed matter, toys, newspapers, linen wear, books, sewing machines, other machines (including shoemaking machinery), motors, novelties, tools, gold, sandpaper, paper, paper pulp, perfumery, patterns, shovels, dried prunes, chopped apples and pears, spices, pumps, wood pulleys, printing and other presses, hardware, medicinal roots, springs, emery wheels, water turbines, wheels, ribbons, lard, soap, saws, silk goods, tobacco, pictures, drums, vaseline, glassware, bladders, clothing, preserved meats, vises, and whisky.

France is a larger importing nation than the United States. In 1901, the value of merchandise received in the former country was $910,000,000, against $823,000,000 imported into the United States. Of the French imports $603,000,000 were raw materials, $155,000,000 alimentary products, and $153,000,000 manufactured goods. Of the latter, the United States furnished only $18,000,000, or a little less than 12 per cent.

The trade of our country with France is handicapped to some extent by the heavier freights and custom duties our shippers have to pay, in comparison with their German and English competitors, and no doubt if the commercial agreement now existing between France and the United States were extended to cover other articles the trade between the two countries would be materially increased. The question arises whether, under the present conditions, more of our manufactured goods could not be exported to this country? My answer would be in the affirmative, considering the good quality, the low price, and the efficiency of American-made products. The methods which American manufacturers use in introducing their goods in France, however, do not compare favorably with those they employ in their own markets. My views upon the subject are embodied in a letter I recently wrote to one of our large commercial institutions, extracts from which follow.

What the future of our export trade will be when our exporters have reduced the exploitation of their goods abroad to an exact science, as our German and English competitors have done, would be hard to forecast. In my opinion, the outlook is rosy.

Take France as an example of a country in which there is a good field for an increase in our trade in manufactured goods. I speak of manufactured goods, for the exportation of our food products, cereals, and raw materials must continue to augment proportionately to the development of our natural resources, to supply the normal increase in demand. According to the official French customs statistics, the total imports into France in 1901 were valued at $910,000,000, of which the United States contributed $93,000,000—a fraction over 10 per cent. We sent to France 15 per cent of her wood imports, 20 per cent of the machines and machinery imported, 5.5 per cent of the tools and hardware, 11.8 per cent of the lumber and woodwork, 7 per cent of the dressed skins, 1.25 per cent of the chemical products, 18.75 per cent of the oil cake, and 7 per cent of the rubber goods received. The imports of paper pulp, jewelry, watches, clocks, pottery, and glassware from the United States were so comparatively small that they were included under the general terms of other articles. Now the question is whether the above percentage can be increased. I think it can.

I doubt very much if there are over 50 of our manufacturing concerns which are properly represented in France. I mean that there are not over the above number of American houses which have head agencies in Paris, with agents in the provincial cities who canvass their various districts to advertise their goods and to solicit orders.

Havre is a city of 130,000 inhabitants; but if one wished to buy American dairy machinery, he would not be able to do so without either going or writing to Paris. In that city, he would find the machines made by one or two American houses only, and sold by French concerns. On the other hand, in all the agricultural centers, French, Danish, and Swedish churns, centrifugal separators, butter workers, etc., are extensively advertised and kept in stock. There are few hotels, cafés, or restaurants in the farming districts of France in which posters are not displayed advertising American harvesting machinery and giving the name of the nearest resident agent. But I have never seen—and I have traveled over a large portion of France—an advertisement of a potato digger and sorter, or any of this class of labor-saving machines which are so extensively used in the United States.

American ice-cream freezers for family use can be bought in several of the department stores of Havre; but if you wanted a household refrigerator, the use of which is constantly increasing in France, you would find one store which keeps them, but only one make, and that not of the best. If you wanted an American baseburner stove, you might perhaps find one or two French imitations on sale; but to have the genuine article, if you happened to know the agents of American stoves in Paris (for they are not advertised), you could write and would receive a catalogue in reply, from which a selection could be made. If the stove chosen was in stock, you would receive it in about a week. If not on hand, you would have to wait at least six weeks.

Two of the best makes of American lawn mowers can be bought in Havre. American-made shoes are being more extensively displayed in the shop windows, but good assortments are by no means kept in stock. I have never seen American fire and burglar proof safes on sale in this city, nor have I ever heard of one being used.

American lathes and other machine tools, made by several of our principal manufacturers, can be bought from the machinery dealers of Havre. If the tool desired should not be on hand, the dealer can easily get it from the agents in Paris, where large stocks are kept; but if a builder wished to introduce into a house the American system of heating by hot water or steam, or to furnish bath rooms with American specialties, he would find much trouble in doing so. Several of my friends have porcelain bath tubs and sanitary water-closets, but they sent to England for them.

American building hardware, locks, etc., are also but little known in the French provincial towns; neither are American sporting implements. In the past five years, outdoor sports have become very popular in France. Formerly, football and tennis were confined to Paris, where there is always a large colony of Americans and English, but now these games are extensively played in the provinces. I have never seen American balls, rackets, nets, etc., used. In my opinion, with proper methods, our trade with France in the following products could be materially increased: Steam fire engines, printing presses, printing materials, hardware (including locks), builders' hardware, hot-air and gas engines; chairs, desks, and other office furniture; parlor organs, mechanical piano players, chemical products, etc.

Spasmodic attempts to create foreign trade are never successful. If our manufacturers really desire to secure outlets abroad for their products, they should make systematic efforts, based on sound business methods, to do so. They should become conversant with the needs and mode of life of the foreigners to whom they wish to sell their wares, and then furnish goods which will be acceptable. Let our exporters treat the foreigners courteously and kindly; let them feel that they can get what they want and that they can always depend upon quick and complete shipments of their orders. The principle that anything is good enough for foreigners will not increase our export trade. They know what goods they can sell and the prices they can pay. Even more care and attention should be given to filling foreign orders than those for the home markets, for mistakes are harder to rectify. Do not send too much or too little, but execute the order exactly as it is given, or else vexatious delays are bound to occur, with possibly a refusal of the goods and a lawsuit, and certainly loss of future trade. One of the largest wood importers in France tells me that he is almost tempted to give up entirely the handling of American wood. He says he seldom receives a cargo which is according to order. Either the amount is in excess or it falls short, and often the quality is inferior to that which he expected to get. The American shipper, recognizing that the order is not properly filled, writes that the question of quantity and quality can be left to arbitration. This way of doing business is always unsatisfactory to the buyer, as he never knows what he may expect, and there is an unforeseen expense.

METRIC SYSTEM.

The sooner American exporters learn the metric system of measurement, the better chance they will have of successfully meeting foreign competition in the French markets. For example: Austrian oak in France commands a higher price than American oak, and is used in preference, although in many cases the former is not as good as the American wood. The reason is that the Austrian shippers are careful in having their wood sawed to the metric dimensions called for by the French consumers, while the American shippers send their wood sawed to inches. There may not be much difference in the measurements, but there is enough to make the French cabinetmaker prefer the Austrian oak. The French customs law permits the free entry of certain woods if they are sawed to more than 2 decimeters (7.87 inches) square in the logs. If the logs measure even a small fraction under the above dimensions, they have to pay a duty of 1.50 francs (28.9 cents) per 100 kilograms (220.46 pounds). Frequently, owing to careless sawing and unfamiliarity with metric measurements, American shippers send logs to Havre which measure less than 7.87 inches, perhaps at one end only, which forces the consignee to pay the duty on the whole log.

At the present time, our country is enjoying wonderful prosperity. When the reaction takes place and there is a serious depression in our home markets, our manufacturers will realize that foreign trade is an important factor of our industrial life. Those who have kept up business relations with foreign consumers, and have outside outlets for the sale of their goods, will be the last to reduce their working force, to run on short time, or to sacrifice their overproduction by selling it at a loss on the home markets.

THE BANK OF FRANCE.

The Bank of France was founded by Bonaparte (the First Consul) in February, 1800, and was granted the sole privilege of issuing notes—a privilege which it has ever since retained.

The capital was originally 30,000,000 francs ($5,790,000), in 30,000 shares of 1,000 francs ($193) each. Three years later, the capital was increased to 45,000,000 francs ($8,685,000) and afterwards to 90,000,000 francs ($17,370,000). By buying in the shares, the bank decreased its capital to less than 68,000,000 francs ($13,124,000), but the purchase of various provincial banks brought the total (in 1848) up to 91,250,000 francs ($17,611,250). This was afterwards doubled by the issue of 91,250 new shares at 1,100 francs ($212), the 100 francs premium going to constitute a reserve fund, and the capital now is 182,500,000 francs ($35,222,000) in 182,500 shares of 1,000 francs ($193) each.

The capital belongs entirely to the shareholders, and is not under the control of the State. In fact, the Bank of France is a private joint-stock company, but is subject to certain special laws and regulations.

The bank is managed by a director, two subdirectors, and a board of fifteen members. Napoleon decreed that the director and his two assistants should be appointed by the Government, and that three of the fifteen on the council should be treasury officials; and this law is still in force. The President of the Republic also nominates the managers of the country branches, but, as a matter of fact, these appointments are given to persons recommended by the director of the bank. The balance sheet of the bank is published every week in the Journal Officiel, and an account is forwarded to the Minister of Finance every six months.

The privilege of issuing notes was at first granted for a period of fifteen years, which was afterwards extended to forty years, and has been renewed several times, the last occasion being in 1897.

The limit of issue is fixed by the Government at 4,000,000,000 francs ($772,000,000), approximately. In the last weekly return published, the notes amounted to 4,304,562,325 francs ($830,780,528). The gold and silver lying in the bank on the same day represented 3,648,748,942 francs ($704,208,546), without taking into account the standing loan to the Government (180,000,000 francs, or $34,740,000), securities, notes in the banking department, and other assets.

The principal business of the bank is discounting bills. Checks are still very little used in France, and nearly all trade accounts between wholesale and retail dealers are settled by bills at two or three months. The bank discounts at one-half of 1 per cent above the bank rate almost any paper that bears three names and has not more than ninety-five days to run.

The remarkable way in which France has always recovered after a great disaster is due to the readiness with which the people, and more especially the thrifty peasant farmers of the north, subscribe to a new loan. Pending the arrangement of such a loan, the bank assists the Government by lending ready money, and in 1870–71 advanced 1,530,000,000 francs ($295,000,000), which was all repaid within the next seven or eight years. But it does not appear that bank and State cooperate in getting money into circulation.

In a commercial crisis the bank regulates the discount rate according to what it considers the situation demands, and greatly increases its discount business. With regard to the regulating of the rate of discount, it may be remarked that the bank professes (in the words of one of its former managers) to "neither create nor invent, but simply to follow public opinion." In an agricultural crisis the bank does little or no good, being prevented by its rule not to discount any bills that have more than ninety-five days to run; at least that is the opinion of M. Léon Say and other well-known French economists.

Many writers think that it is not to the public advantage that the bank should possess a monopoly, and each time that the privilege has had to be renewed numbers of pamphlets arguing both sides of the question have appeared. The privilege has always been renewed, however, the Government feeling, perhaps, that any interference with the monopoly now would be fraught with greater dangers or inconveniences than those it was intended to remedy.

The staff of the Bank of France consists of 1,093 employees at the central office and 1,341 at the various branches. A candidate for a clerkship must be between the ages of 19 and 30 years, and pass an examination. There are several schools in which candidates are "coached."

The salary at first is 2,000 francs ($386) in Paris and 1,800 francs ($347) at the provincial branches. Napoleon, when he founded the bank, decreed that the first manager might call himself governor if he liked, since titles cost nothing, and his salary might be as large as the shareholders pleased—as the bank would pay: "It might even go as high as 60,000 francs" ($11,580). The business of the bank has increased tenfold since that time, but the manager's salary has not exceeded the limit laid down by Napoleon, and is still, I believe, 60,000 francs ($11,580); but as the bank is a private company, it is difficult to obtain the information regarding the salaries. The governor must hold 100 shares and the two submanagers 50 shares each. Every clerk must lodge, as a guaranty, 1 share in the bank, or sufficient Government stock to produce 130 francs ($25.09). The amount of the guaranty increases as the clerk rises in grade, and in the case of a manager of a provincial branch is 15 bank shares, or "rentes" sufficient to produce 780 francs ($150.54) a year.

After thirty years' service in the office, or twenty-five years as an outdoor collector, a clerk is entitled to a pension equal to half his average salary during the last three years. This pension is increased by one-thirtieth for each year he serves beyond the regular period, but must not exceed two-thirds of his yearly salary. Half the pension is continued to the widow, provided she was married at least three years before her husband's death. When a widow is left with children under 15 years of age, the pension may be increased by one-twentieth of the sum her husband received for each of said children.

JOHN K. GOWDY,
Consul-General.

PARIS, *December 12, 1902.*

PHOTOGRAPHS ON FRUIT IN FRANCE.

Apples upon the surface of which are perfectly reproduced the photographs of the Emperor and Empress of Russia and of the President of the French Republic have been shown in France.

Before photography was employed, images were produced by means of figures cut from paper and stuck on the surface. When the paper was removed, the image appeared light and the fruit dark, or vice versa, according to the manner in which the paper was cut and applied.

At present, however, photographs are reproduced with all their details. Strong negative electrotypes are employed, having great resistance and reproduced on thin films. The films are obtained by photographing the subject many times. The film is held in place by two rubber rings or is stuck by some matter that will not obstruct the rays of light, such as albumen or the white of an egg.

THORNWELL HAYNES,
Consul.

ROUEN, *December 16, 1902.*

THE WOOL TRADE OF MARSEILLES.

The reviving importance of Marseilles as a source of supply for coarse carpet wools in the United States makes it a matter of moment to American buyers to understand that prices have stiffened in this market recently, mainly in consequence of the American demand. Henri Caune, who conducts the public auctions, and whose authority in these matters is generally recognized, has issued his report for the year, in which he says:

> The first months of the past year were calm and the disposition has been toward a lowering of prices. In the month of May business became more active. During June prices stiffened, and the increase commenced in July, continuing until the end of December. I have to report an increase in values of from 15 to 20 per cent upon wools for textiles and of from 20 to 30 per cent upon wools for upholstering and carpet trades. Local manufacturers have operated upon a large scale, in spite of the little choice represented by local stocks, and the general French trade has manifested more interest in our market, while foreign buyers, in consequence of numerous purchases, have contributed largely to the rise above mentioned. Unfortunately, I have also to note this year a shortage in arrivals amounting to 30,000 bales. The shortage during 1901 was 10,000 bales. This progressive shortage is due to three principal causes: (1) The excessive mortality existing more or less everywhere in the Mediterranean basin, but principally in Georgia, Syria, and Mesopotamia; (2) the local prices paid during the shearing season; and (3), finally, the large number of mills erected in countries of production.

> In spite of these conditions, our city continues to be the principal market for common wools, where domestic manufacturers and Americans will always find a most desirable choice. We arrive at the end of the year with a stock which I have never seen so reduced—that is to say, 6,600 bales. I have to say also that prices will remain very firm, at least until June, 1903, the next shearing season.

Armand Petit, another of the sworn wool brokers, says, in his review for 1902, that the domestic manufacturers are now interesting themselves principally in Bagdad wools. He adds:

> The United States now, as heretofore, is the most regular market for carpet wools. When the local stock is lacking in the qualities desired, advance orders have been executed directly in the countries of production, the merchandise being forwarded to Marseilles, inspected here, and reforwarded to the United States. The security offered by this method facilitates the entry into the United States of these wools at the lowest duty and permits of a daily development in operations of this character.
>
> We hope that the United States tariff will be modified in certain respects, and we give voice to the desire that Bagdad wools be no longer taxed with a prohibitive tariff, but put upon the same level as the Mossoul and Awassi wools. In consequence of the crossbreeding in Mesopotamia, the true Bagdad wools no longer exist, so to speak, and it requires the most expert knowledge to recognize these wools among the Mossouls and Awassis. These qualities are all pretty nearly identical, and according to the particular bales examined, give rise in the United States to various applications of the tariff rule. Under the present conditions, the majority of buyers hesitate to deal in these qualities, and we hope that a change in the law will be made whereby the wool trade will be placed upon the same footing.

The circumstance that the French wool trade comes to this market particularly to seek the Bagdad wools, because of their special qualities, and the intimation that because of crossbreeding these wools no longer exist in their original excellence, seems rather contradictory. Probably, the situation lies along middle ground somewhere. In my annual report* I have briefly explained how and why prices for carpet wools are automatically regulated in this market by the present tariff law.

There is no doubt that considerable quantities of very low grade Bagdad wool, which differ very little intrinsically from the Awassis, are received in this port, and that their occasional shipment to the United States results in complication requiring the most careful study of each bale upon its own merits.

The total wool receipts in Marseilles during the year 1902 were 100,235 bales, with 23,000 bales in stock at the end of 1901. The sales from local stock amounted to 116,635 bales, leaving a net stock of 6,600 bales at the close of 1902.

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *January 7, 1903.*

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* To appear in Commercial Relations, 1902, now in the hands of the printer.

TEXTILE INDUSTRY OF ST. ETIENNE.

The manufactories of St. Etienne, Tarare, Roanne, and Villefranche form a special group in the textile industry of this district.

Those of St. Etienne have been particularly busy in the last year. In spite of the abandoning of the classical plain ribbon and the keen competition of Swiss manufactures, and thanks to the great favor velvet ribbons have enjoyed and the considerable trade done in fancy ribbons, the production of St. Etienne attained in 1901 the highest figure of the last ten years, namely, 94,472,000 francs ($18,233,096). About half was exported.

Tarare, which had been steadily diminishing in importance for the last fifteen years, was able to avail itself of the fashion, and produced a large quantity of silk muslin of very fine quality.

As regards Roanne, the exportation of cottonades and prints attained the important figure of 27,000 tons. Similar prosperity is reported from Villefranche.

A feature of the St. Etienne manufacture in 1901 was the great predominance of mixed ribbons over the pure-silk product. The last figured in the total production for only 31 per cent, while they represented 41 per cent three years before.

HILARY S. BRUNOT,

ST. ETIENNE, *December 19, 1902.* *Consul.*

THE SILKWORM IN SPAIN.

The following has been received from Consular Agent A. E. Carleton, of Almeria:

The silkworm crop in Spain in 1901 was less by 121,000 pounds than in 1900. According to estimated figures, taken from El Defensor de Granada, the total product in 1901 was 2,189,000 pounds, and in the year preceding 2,310,000 pounds. A comparative table showing the production from the various provinces follows:

Province.	1900.	1901.
	Pounds.	*Pounds.*
Valencia and Aragon	924,000	919,600
Murcia and Orihuela	1,298,000	1,188,000
Sierra Segura	24,200	22,000
Almeria and Granada	57,200	50,600
Extremadura	6,600	8,800
Total	2,310,000	2,189,000

In the province of Valencia, the same causes which lessened the output in 1900 prevailed in 1901; the silkworm, which had been damaged by the cold, was not strong enough to combat the various diseases which attacked the pod. In Murcia, also, the weather was responsible for the loss.

The French specie continues to be cultivated almost entirely in Spain. The product in general has been somewhat less satisfactory than in 1900. For 1901, 11½ to 12 kilograms (25.3 to 26.4 pounds) of silkworm pod were necessary for a kilogram of silk in the regions of Valencia and Murcia.

Of the total crop, 77,000 pounds were used in making fishing nets, leaving 2,112,000 pounds, which in 1901 produced in crude silk 176,000 pounds against 184,000 pounds in 1900; 171,600 pounds in 1899; 176,000 pounds in 1898; 160,000 pounds in 1897; and 264,000 pounds in 1896.

SILKWORMS IN ITALY.

In reply to inquiries from a resident of Georgia,* Consul William Jarvis, of Milan, sends the following:

Silkworms bred in Italy are exclusively those which feed on the mulberry leaf, so that the yama-mai and the eri and the muga have no place in the Italian market. The breeds cultivated in Italy are:

1. The pure yellow, which is the old race of the country. This uncrossed breed forms a large part of the national production.
2. The white indigenous, cultivated only to a limited extent.
3. The Japanese cross, produced from the pure yellow moth and the moth of the green Japanese breed. The worm of this cross is extremely robust and the cocoons are abundant and generally reliable. The produce is considered of less value than the pure yellow, but forms an important part of the national culture.

The Chinese cross is produced with the pure yellow moth and the white (spherical cocoon) Chinese moth. This cross makes a smaller cocoon, which is consequently of less weight than the pure yellow, but is equal to it in comparative value. No public office exists for testing and sorting eggs. The seller who supplies eggs which do not give satisfaction loses his customers. The value of eggs is established by the results in past seasons.

There is no fixed rule in regard to planting mulberry trees. Thousands of square miles of these trees are planted in rectangles, the average distance from each other being 9 yards by 17 yards, thus forming avenues 17 yards broad with the trees in lines 9 yards apart. If the ground be pasture land, trees can be planted even 3 yards apart, but the earth must be always good and dry, with deep subsoil. Trees can be planted either in spring or autumn, and can be transplanted. If in good condition, they live from fifty to seventy years. They are not planted in bush form in Italy. Ordinary trees under usual conditions will produce from about 35 to 65 pounds of leaves in a year—that is, only that quantity is obtained from the first growth. The leaves must not be taken a second time in the same year. These leaves, under normal conditions, cost about 3.50 to 4.50 lire (67.5 to 86.8 cents) per 100 pounds. The worms produced from 1 ounce of eggs will consume from 1,700 to 2,400 pounds of leaves during the season.

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* To whom the original letter has been forwarded.

The price obtained for fresh and good cocoons is from 3 to 3.50 lire (58 to 67.5 cents) per kilogram (2.2 pounds), according to locality where produced and to quality of eggs. Dry cocoons fetch about 10 lire ($1.93) per kilogram, but with the guaranty that 4 kilograms (8.8 pounds) of cocoons will yield 1 kilogram (2.2 pounds) of silk. The value of pierced or damaged cocoons may be as low as 50 centimes (9.6 cents). The cultivation of silkworms occupies only about forty days, dating from the birth of the worms until the cocoons are formed. In the first stage, one woman can take care of the worms produced from 2 ounces of eggs. A few days later, as worms grow rapidly, four or five persons must be engaged. Later on, when the worm begins to seek the prepared twigs and branches, five or six women are not too many to feed and otherwise care for the worms produced from 1 ounce of eggs. It is here assumed that the leaves are gathered by other hands during the seven or eight days when the worms require much attention. In the last stage, preparatory to formation of cocoon, many hands must be engaged, working day and night.

COMMERCIAL NOTES FROM ITALY.

The following extracts are from the annual report of Consul Richmond Pearson, of Genoa, to appear in full in Commercial Relations, 1902:

COTTON MANUFACTURING IN ITALY.

I have received from the Ministry of Agriculture, Industry, and Commerce an exhaustive report on the cotton-milling industry of the Kingdom, from which I have compiled the following statistics.

The importation of cotton in recent years has increased as follows:

	Tons.
1870	14,695
1880	47,254
1890	101,736
1900	122,690

It is seen that, in the past three decades, the imports of cotton have increased from 60,000 bales to 536,000 bales. The imports came mainly from the following countries:

	Tons.
United States	93,459
British India	14,399
Egypt	6,929

The United States furnishes four-fifths of the cotton consumed by Italian mills. The number of operatives in the mills in 1900 was 135,198, classified as follows:

Description.	Males.	Females.
Adults	34,738	82,932
Under 15 years of age	4,358	13,170

The total number of operatives in 1876 was 53,000. The following table gives other data:

Description.		1876.	1900.
Power employed:			
Steam	horsepower	2,990	39,245
Water power	do	9,703	33,590
Mills	number	647	727
Spindles	do	764,862	2,111,170
Looms	do	27,000	78,306

The value of the output in 1876 was 51,000,000 lire ($9,843,000); in 1900, it was 304,000,000 lire ($58,672,000).

The principal increase in the industry has taken place in Lombardy and Piedmont, and especially around the cities of Milan, Turin, Novara, Como, and Bergamo, which enjoy the triple advantage of abundant and constant water power, cheap labor, and excellent climate.

Average wages per day.

Description.	Amount.	
	Lire.	*Cents.*
For men	2.20	42
For women	1.70	33
For children	.80	16

Labor is still cheaper in southern Italy and in Sicily, but the population in those parts of the Kingdom is not as industrious as that of Liguria, Piedmont, and Lombardy.

It is natural that the best water power in Italy should be found along the streams from the lakes which are fed by the rains and melting snows of the Alps. The water courses which have their sources in the Apennines either diminish greatly in volume or dry up entirely in the summer, because there is no snow even on the highest peaks during eight months of the year, while the eternal beds of snow on the Alps furnish an abundant supply of water for the lakes of northern Italy in the driest and hottest season. Some of these lakes are 1,000 feet deep and 25 miles long, and they lie at varying elevations above the sea, the smaller ones sending their overflow into Maggiore, Como, and Garda, which in turn find outlets into the Po. In location, volume, and constancy this water power is simply ideal, and goes far to compensate Italy for the absence of coal; in fact, it gives her what the French call "houille blanche," or white coal.

WATER SUPPLY OF GENOA.

It would be difficult to imagine a more perfect supply of drinking water than that furnished to the city of Genoa. Since the introduction of pure water, there has been a marked improvement in the health of the city. Owing to the peculiar situation of Genoa—lying, as it does, in a kind of shell, sloping seaward from the Apennines to the Mediterranean—and on account of the dense population living along the two streams which run into the sea on the east and west of the city, the water supply was found to be rapidly deteriorating, and a new source was recognized as necessary. The problem was surrounded by physical obstacles which seemed insuperable, but its solution was as successful as it was bold and costly. A reservoir on the sea slope of the mountains being out of the question, the new company, composed of enterprising Belgians, determined to bring the water from the other side of the range, and for this purpose they purchased an extensive area of land on the north and west slopes of the Apennines. This land was wild and sparsely settled at the time, and is now absolutely uninhabited, not even sheep or cattle being allowed to range upon the watershed. Two enormous dams of granite were constructed to catch and confine the water, and then a tunnel, nearly 2 miles in length, was built through the heart of the mountain to conduct the water by gravitation to the Genoa side of the range. The work is a monument to the engineer, Mr. Nicolo Bruno. The first cost is practically the only cost, and the water is entirely pure. It yields about 10,000,000 gallons daily and is used exclusively for drinking purposes, the supply for other uses coming from the two old aqueducts leading from the streams above mentioned.

OPENINGS FOR AMERICAN ENTERPRISE IN ITALY.

Coal.—It is certain that the American firm which first establishes itself in Genoa in the coal trade, and handles the business even at a very narrow margin of profit, will in time make money. Four years ago, the importation of our coal here amounted to only 20 tons; the next year the quantity imported was 28,000 tons; the following year, 78,000 tons; while in the first half of the current year, notwithstanding the strikes, the imports of American coal have exceeded 65,000 tons. This port requires 2,000,000 tons per annum now, and the demand increases every year. The greater part goes to the interior, to the mills in Lombardy, Piedmont, and Switzerland. Ninety-five per cent of the coal imported here comes from Wales and England.

Cotton.—Another field for American enterprise is the establishment of an agency here to import cotton direct from the Gulf and South Atlantic ports. Genoa requires 500,000 bales of American cotton annually. Much of this goes to Liverpool or Havre, where it has to be rehandled and transshipped to Genoa. It goes without saying that direct trade, avoiding intermediaries, would save money for the shipper.

Elevators.—American elevators, if once introduced here and elsewhere on the Continent, would quickly and surely supplant the cumbrous, uncertain, and inefficient machines turned out by the factories in Milan and in various parts of France. The houses in this city average 7 stories in height. Elevators are greatly needed; the few that are installed were purchased in Milan, and the contrivances are almost comically defective. They take passengers upstairs at a snail's pace, and can not bring them down at all.

Mill machinery.—There is a most promising field here for American cotton-mill machinery. Three-fourths of the mills now in operation are equipped with old-fashioned machinery, made in France.

Bath tubs.—American plumbing supplies, especially modern bath tubs and water-closets, are gaining a foothold on the Continent, mostly in the large hotels. An American commercial traveler tells me that his house has just installed twenty-four porcelain-lined bath tubs in a new hotel at Stuttgart. This fact alone assures the patronage of American tourists.

Locks.—American door locks and keys ought to supplant the grotesque and ponderous concerns found everywhere on the Continent. The key to this consulate is nearly 8 inches long and weighs about half a pound. The transportation of this quaint implement on the person would require a specially constructed pocket, and the key itself might easily be mistaken for a deadly weapon.

OPENING FOR SULPHATE OF COPPER IN GREECE.

I have just sent a telegram* announcing the decision of the Currant Bank to purchase sulphate of copper to the extent of 1,000 tons for immediate shipment.

The conditions governing bids are the same as those of last year, particulars of which were printed in CONSULAR REPORTS No. 258 (March, 1902).† The bids will be opened January 22, and the successful company must place the cargo in this port on or before the 28th of February.

The success of the American syndicate last year—for the first time, I believe, in the copper-sulphate trade of this country when our product was brought into direct competition with the European—presupposes a favorable issue a second time. However, European firms which have succeeded for many seasons in placing their product on this market at high prices were enlightened, though not pleased, by the American invasion of last year, and their representatives here are prepared to nip this invasion in its infancy. The order which the Currant Bank expects to place has double the value of its last year's opening order, and is certainly worth three times last year's effort to secure.

FRANK W. JACKSON,
Consul.

PATRAS, *December 18, 1902.*

TRADE OF SLAVONIA.

The annual report of the Chamber of Commerce and Industry at Eszek for 1901 states that the agricultural population of Slavonia has been saved from ruin by the development of secondarily profitable undertakings, so as to make their income independent of agriculture proper. This took place largely through the action of the 46 Servian and the 88 native farmers' cooperative unions and of the 12 national milk associations in Slavonia.

Landowners also founded linen and hemp plants and an oil-producing establishment.

Merchants in Slavonia, as in Hungary proper, are suffering from the uncertainty as to the commercial compact between Hungary and Austria. They deprecate any increase in the tariff of Germany on oak wood, and ask for protection for tannin against the competition of imported quebracho wood. The same is true of Slavonian timber, especially ties, with which the American product competes.

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*Printed in ADVANCE SHEETS No. 1525 (December 20, 1902).

†ADVANCE SHEETS No. 1264.

Two new branches of railroad were opened to connect Slavonia with important Servian and Bosnian export stations—Sabac and Dolnja-Tuzla. Nothing has yet been done, however, toward building the projected line of 18 kilometers (11.18 miles) from Pétervárad to Beocin to promote direct shipment of Slavonia's richest produce—wine, fruits, and vegetables.

In 1901, the interurban system of telephone was extended to Eszek, which act has proved of great benefit to the wholesale merchants in that city.

Briefly, Slavonia has begun to enter into the commercial life of Europe. The country would probably profit by a closer union between Hungary and the occupied provinces of Bosnia-Herzegovina. The warehouses in Eszek, which for decades have supplied Bosnia, now feel the disproportionate freights, by virtue of which Vienna, Munich, and Stuttgart houses manage to compete, if not in time, at least in price, in sending the needed supplies.

FRANK DYER CHESTER,
BUDAPEST, *November 19, 1902.* *Consul.*

OLD VIENNA PORCELAIN FIGURES.

The great Austrian porcelain manufactory that existed in Vienna for generations under State control and by the aid of State subvention was abolished in 1864 as commercially unsuccessful. It was perhaps the leading factor in bringing the ceramic industries of Austria into favor and importance. Upon the closing of this Government undertaking, the works were sold piecemeal and the parts not acquired by the museums were bought by the public. In addition to the usual table services, the manufactory had made a great variety of decorated china groups that, on account of their beautiful modeling, fine paste, and glaze, as well as rich coloring, gave the works perhaps their greatest fame. On the sale of the molds in which these groups were formed, the most considerable and best portion was purchased by a local factory that made little or no use of them. Now, after lying idle some forty years, the molds have been taken up by the chief porcelain and faïence establishment in Vienna, and the manufacture of the old-time groups, originally modeled by celebrated artists, has begun again. This new work can not rightly be termed reproduction or copy. It is recoinage from old dies—a resumption of discontinued work. Save in age, there is no variation; paste and pigment are identical; and when the touch of time has mellowed the glaze (and incidentally broken some of the more prominent points of the groups), it will be practically impossible to detect the difference between the figures of to-day and those of yesterday, except that the impressed shield on the bottom of each piece is now accompanied by a coronet. With the dissolution of the former works, the famous mark of a blue shield, commonly looked at reversed and called a beehive, dropped from the category of exclusive property, like Meissen or Sèvres, and became free to all who chose to employ it.

Beyond its artistic and historical aspects, this renaissance of a celebrated industry will have a marked bearing on the ceramic trade of Austria.

CARL BAILEY HURST,
Consul-General.

VIENNA, *December 15, 1902.*

STEAM POWER OF PRUSSIA IN 1902.

The use of steam power in Prussia has increased during the year 1902, in spite of the general business depression.

Exclusive of locomotives and the boilers and machines used in the army and navy, there were in use on April 1 of the two years:

Description.	1901.	1902.	Increase.
	Number.	*Number.*	*Per cent.*
Steam boilers, stationary	70,832	72,098	1.79
Steam engines:			
Stationary	75,958	77,583	2.14
Portable	21,465	22,259	3.7
Of these, there were connected with one machine	20,898	21,612	3.42
Inland steamships	1,738	1,757	1.09
Steam boilers	1,984	1,984	....
Steam engines	1,928	1,946	.93
Ocean steamships	484	502	3.72
Steam boilers	646	675	4.49
Steam engines	512	533	4.1

The largest increase is shown in the steam boilers and engines on ocean steamers. These figures, however, refer only to those used in propelling the steamships. In power produced, ocean steamers do not show the largest increase.

The following table shows the capacity as to horsepower:

Description.	1901.	1902.	Increase.	Decrease.
	Horsepower.	*Horsepower.*	*Per cent.*	*Per cent.*
Steam engines:				
Stationary	3,709,662	4,008,597	8.06	....
Portable	251,073	270,543	7.75	....
Steamships:				
Inland	202,218	196,186	....	2.98
Ocean	165,825	176,066	6.18	....

The number of steam boilers and engines on steamships not used for the purpose of propelling is as follows:

Description.	1901.	1902.
Boilers:	*Number.*	*Number.*
Stationary	446	453
Portable	218	239
Engines:		
Stationary	1,598	1,661
Portable	214	237

The district of Düsseldorf has the largest number of stationary boilers (9,191) and 10,199 engines.

The largest number of portable boilers (1,305) and 1,284 engines are found in the district of Magdeburg.

The district of Potsdam has the largest number of inland steamships (308), with 311 boilers and 339 engines, while as to ocean steamships the district of Schleswig is at the head, with 238 steamships, using 333 boilers and 250 engines.

JOSEPH J. LANGER,
Consul.

SOLINGEN, *December 10, 1902.*

SHOEMAKERS' EXHIBITION IN HAMBURG.

During the month of July, 1903, a German Shoemakers' Exhibition will take place at Hamburg. This will embrace exhibits of the work of apprentices and masters; exhibits of the work of the German schools for shoemakers; consideration of the question of the shoe supply of the German army; exhibitions of leather and tanning materials; of shoemakers' lasts, tools, and instruments of various kinds; of machines of diverse classes employed in the manufacture of shoes; of preparations for the preservation of leather; and of other articles used or consumed in the shoemaking trade.

The prime object of the meeting is declared to be the promotion of technical education in the shoemaking branch. Manufacturers of leather and shoemakers' supplies will find inducement to exhibit their products.

Special inquiry was made by this office as to how far foreigners would be permitted to participate in the exhibition, and the reply was that all kinds of machinery for the manufacture of shoes might be displayed and operated, and any exhibits or discussions contributed which were to the interest of the shoemaking trade. All classes of shoes, however, which are manufactured in foreign countries in bulk for the general trade, and are placed upon the market in large quantities, may not be exhibited or sold at the exposition. Shoemakers' tools and supplies of all kinds may be exhibited. The following charges are made for space: For 1 square meter of table space, $1.75; for 1 square meter of floor space, $1.45.

The exhibitor is required to answer the following questions: Name and residence; nature of articles exhibited; floor space desired; table space; wall space; whether or not electrical power is required; amount of fire insurance desired; will the articles be exhibited in cases, in terrace formations, or in other form; are the articles on sale, and, if so, at what prices; do you desire a representative and guardsman chosen by the managing committee, or will you be personally present, or choose your own representative who will tend to all packing and policing of your goods; if a representative, what is his name?

I am convinced that there has never been presented a better opportunity for bringing American shoemaking machines and cobbler's accessories before the German shoe dealers. The German imitative genius need not be feared, as efforts have repeatedly been made to approach the American shoe, and while these have been to some extent successful, a sufficient difference in finish and appearance can be detected to maintain for our product its superiority upon the German market.

J. F. MONAGHAN,
Consul.

CHEMNITZ, *December 18, 1902.*

EXHIBITION OF FOOD STUFFS AT GHENT.

Consul F. R. Mowrer transmits from Ghent, December 18, 1902, the following translation of a prospectus of an international exposition of food stuffs and the art of cooking, to be held at Ghent from March 12 to March 30, 1903, which may prove of interest to American manufacturers of these products:

CLASSIFICATION.

Group I.—Bakery.
Group II.—Pastry and confectionery.
Group III.—Culinary art.
Group IV.—Creameries and their products; machinery.
Group V.—Alimentary preserves.
Group VI.—Groceries and spices.
Group VII.—Brewing.
Group VIII.—Distilleries, wines, liquors, and spirits.
Group IX.—Gaseous waters (natural and artificial).
Group X.—Butchery.
Group XI.—Pork and intestines.
Group XII.—Fish.
Group XIII.—Poultry.

Group XIV.—Natural products of the soil (including plans of farms and hot-houses).

Group XV.—Furniture.

Group XVI.—Material and table services.

Group XVII.—Instruction.

Group XVIII.—Exportation.

GENERAL REGULATIONS.

The exposition of food stuffs will be held in the Salle VanEyck, Place VanEyck.

All applications for admission by the executive committee must be made upon the official form of the exposition and must bear the signature and name of the firm of the exhibitor. Applications must be addressed to the general secretary, boulevard de l'Escaut No. 51, Ghent, before February 15, after which date the committee may increase the price of space. Prices are (minimum, 1 meter): Wall space, 5 francs (97 cents) per running meter (39.37 inches); space not isolated, 20 francs ($3.86) per square meter; space isolated, approachable on every side, 30 francs ($5.79) per square meter; space for shops, wine and beer, contracted for.

Each exhibitor must conduct, at his own expense and risk, the transportation, unpacking, and, later on, the removal and return of his goods. However, the executive committee will negotiate with a firm of brokers, which will look after the reception of goods, custom-house declarations, carriage, unpacking, and placing in position of goods, the charges to be paid by the exhibitor; but the latter is not in any way obliged to have these services performed by this firm.

Exhibitors are responsible to the executive committee for damages and accidents caused by their agents. Exhibitors are expected to put up their installations without damaging the building.

A severe inspection service will be organized by the executive committee, the latter, however, assuming no responsibility as to any prejudice resulting to exhibitors from accidents, fire, damages by water, frost, etc., fraudulent appropriations, and other damages.

Measures have been taken respecting free entry of goods from foreign countries.

Diplomas of honor, gold, silver, and bronze medals, as well as diplomas, will be given.

RUSSIAN EXHIBITION OF HISTORICAL ATTIRE.

The first international exhibition of historical attire and accessories is now being held in St. Petersburg, for the benefit of a home for poor children. The exhibits include garments, shoes, ornaments, cloths, laces, embroideries, fans, jewelry, snuffboxes, miniatures, canes, weapons, furs, linen, and cosmetics.

The Russian historical section is the most interesting and represents almost all types of Russian dress, from the ninth to the nineteenth century. It is subdivided into eight epochs, as follows:

(1) The Normans; Varègs and the time of their sway—the first Russian princes of the ninth century; (2) the Russia of Kief; (3) the period of the Tartar supremacy; (4) the Moscovia (influence of Byzantium); (5) the Great Novgorod; (6) Russia of St. Petersburg (periods of Peter the Great and his successors, of Catherine II, and of Paul I and his successors up to the present time); (7) ancient Little Russian attire, furniture, harness, ornaments, and utensils; (8) ancient Polish, White Russian, and Lithuanian attire, furniture, weapons, harness, ornaments, and utensils.

The last-named exhibit is by far the fullest and richest; next comes the Servian and Austro-Hungarian section.

Germany, France, Italy, Spain, Greece, Sweden, Denmark, Bulgaria, and Roumania participate in this exposition.

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *December 18, 1902.*

RUSSIAN IRON INDUSTRY.

The following is translated from the Messenger of Finance, of December 8, 1902:

The smelting of pig iron in European Russia during the last eighteen months is shown below:

District.	Quantity.	
	Poods.	*Tons.*
Northern provinces	2,254,913	36,665
Moscow Province	15,000,064	243,904
Ural provinces	74,260,224	1,207,483
Southern provinces	136,401,608	2,217,912
Southwestern provinces	14,179	230
Poland	28,643,447	465,747
Northwestern provinces	53,838	876

The total for the first six months of 1901 was 85,678,063 poods (1,393,139 tons); for the second six months of 1901, 87,012,374 poods (1,414,833 tons); and for the first six months of 1902, 83,937,836 poods (1,364,680 tons). Of these figures, 82,134,009 poods (1,335,503 tons) for the first six months of 1901, 83,710,697 poods (1,358,172 tons) for the second six months of 1901, and 80,985,764 poods (1,316,678 tons) for the first six months of 1902 were yielded by private works; and 3,544,054 poods (57,626 tons) for the first six months of 1901, 3,485,660 poods (56,661 tons) for the second six months of 1901, and 2,952,172 poods (48,002 tons) for the first six months of 1902 were yielded by the works of the Government.

These figures show that the decrease in the yield of smelted pig iron, which was observed in 1901, continued during the first six months of 1902.

The smelting of pig iron in the northern region increased at the same time to such an extent that it will surpass, it is hoped, the maximum yield of 1900. The yield in the Ural works is without change. A decrease is observed in the Moscow and southern and Polish provinces. The works of the southwestern and northwestern provinces show no yield at all.

The production of iron and steel goods in the south of Russia decreased 8½ per cent from the same period of 1901. In the meantime the yield of the following articles increased:

Description.	Total product.	
	Poods.	*Tons.*
Rails	9,407,625	152,969
Sheet-iron and ridge-iron plate	548,149	8,913
Iron wire	550,988	8,959
Tires	744,316	12,102
Iron pipes	643,193	10,460

The production of rails in the Ural works shows a decrease of 16 per cent in comparison with the first six months of 1901. The yield in assorted iron increased by 17 per cent, and sheet iron decreased by one-tenth of 1 per cent.

The total yield of worked iron and steel, during the period reported, increased 1½ per cent over the same period of 1901.

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *December 10, 1902.*

RUSSIAN MERCHANT MARINE IN 1901.

According to statistics published by the Imperial Society for Navigation, the oversea export of Russia in 1901 amounted to 50 per cent and the oversea import to 73 per cent of the total of exports and imports. Of the 246,000,000 poods (4,000,000 tons) of goods imported, 221,000,000 poods (3,577,237 tons) were imported on foreign and 25,000,000 poods (406,520 tons) on Russian vessels; out of the 696,000,000 poods (11,317,073 tons) exported, 658,000,000 poods (10,699,170 tons) were exported on foreign and 38,000,000 poods (617,903 tons) on Russian vessels.

The vessels sailing under the Russian flag in 1901 were classified as follows:

Description.	Vessels.	
	Number.	*Tonnage.*
Freight steamers	69	63,417
Freight and passenger steamers	83	115,643
Life savers, ice breakers, and whalers	5	2,171
Not classified	60	54,901
Total	217	236,132

Of the 157 classified vessels, only 5 (of 4,038 tons each) were built in Russia and 152 (of 178,848 tons) abroad, as shown below:

Country.	Vessels.	
	Number.	*Tonnage.*
England	110	136,716
Germany	14	16,417
Denmark	8	11,301
Sweden	7	4,719
Austria	6	1,575
Scotland	4	7,208
Holland	2	163
Norway	1	49
Total	152	178,848

The most important steamship companies in Russia are:

Company.	Vessels.	
	Number.	*Tonnage.*
Russian Company for Navigation and Commerce	35	55,072
Voluntary fleet	14	38,481
Black Sea and Donau Steamship Co.	12	2,122
Archangelsk-Murman Steamship Co.	6	3,801
St. Petersburg-Volga Steamship Co.	4	1,022
Asoff Steamship Co.	4	3,530
Russian Eastern Asiatic Steamship Co.	3	12,618
Helmsing & Grimm	8	8,429

SAMUEL SMITH,
Consul.

MOSCOW, *December 8, 1902.*

RUSSIAN CROP OF WINTER CEREALS.

Under date of December 16, 1902, Consul-General W. R. Holloway, of St. Petersburg, writes that according to the official statistics the yield of winter cereals in 1902 is satisfactory. It is classified as follows:

In—	Rye.		Wheat.		Total.	
	Poods.	*Bushels.*	*Poods.*	*Bushels.*	*Poods.*	*Bushels.*
European Russia	1,249,600,000	805,813,485	243,500,000	146,554,533	1,493,100,000	952,368,018
Vistula provinces	115,800,000	74,674,457	33,500,000	20,162,533	149,300,000	94,836,990
North Caucasian provinces	13,100,000	8,447,646	88,600,000	53,325,387	101,700,000	61,773,033
Siberian provinces	23,400,000	15,089,656	100,000	60,187	23,500,000	15,149,843
Steppe provinces	1,500,000	967,286	200,000	120,374	1,700,000	1,089,660
Total	1,103,400,000	904,992,530	365,900,000	220,223,014	1,769,300,000	1,125,215,744

This shows, adds Mr. Holloway, that the rye yielded 79.3 per cent and the wheat 20.7 per cent of the total crop. The area planted in winter cereals was 32,235,268 dessiatines (87,025,553 acres)—26,814,046 dessiatines (72,389,880 acres) in rye and 5,421,222 dessiatines (14,635,673 acres) in wheat. The total yield was 1,769,306,600 poods (1,125,215,744 bushels), an average increase of 22 per cent for the last five years. The crop of wheat yielded on an average 67.5 poods (41 bushels) per dessiatine (2.7 acres) and rye 52.3 poods (33.6 bushels) per dessiatine.

The figures of 1902, compared with those for the five years past, show that in 44 provinces, with a population of 80,859,800 persons, the crop of the winter cereals is very good (105 per cent). It is below the average for five years (less than 95 per cent) in 22 provinces, with a population of 34,200,000 persons, and it is satisfactory in 6 provinces, having a population of 9,753,000 persons, the yield attaining 95 to 105 per cent of the average for the five years past. The net surplus of the above cereals, after deduction of the quantity necessary for sowing, is 1,481,447,900 poods (891,634,109 bushels), viz, 1,161,775,200 poods (697,567,100 bushels) of rye and 319,672,000 poods (194,067,009 bushels) of wheat, which makes 11.86 poods (7.4 bushels) per person.

SALT MINES OF ILETZK, RUSSIA.

The following translation is from a recent issue of the Messenger of the Government:

Iletzk is a small settlement 62 kilometers (38.5 miles) from Orenburg, in the region of the Kirgiz Steppes. Cossacks of the Ural and emigrants from old Moscovia established this settlement in the middle of the seventeenth century, when the rich stratum, containing from 70,000,000,000 to 80,000,000,000 poods (1,120,000,000 to 1,300,000,000 tons) of excellent mineral salt, covering an area of 4 square versts (1.75 square miles), was discovered. The depth of the mines has recently been ascertained to exceed 90 sagenes (630 feet).

In the beginning of the sixteenth century, Bashkirs worked this layer in a primitive way. The Russian Government took possession of it in 1753. In 1810, the Government built the Orenburg-Samara salt track, and from 1817 a regular exploitation of the mine has been carried on, first by convicts and since 1849 by free workmen.

At present, a company of Orenburg merchants holds these rich mines on lease from the Government, but the work is not extensive. The yearly production does not exceed 1,500,000 poods (24,389 tons), because of the lack of good roads—the place having been inaccessible—but now that a branch of the railway of Orenburg-Tashkent leads to the mine, it is expected that the export will be largely increased.

The salt is now worked by one enormous pit—a sort of great cavern—at a depth of 57 sagenes (399 feet) underground. This excavation measures 112 sagenes (784 feet) in length, 12 sagenes (84 feet) in breadth, and 25 sagenes (175 feet) in height. The walls are quite white. The ceiling is of a cylindric form and has a thickness of 30 sagenes (210 feet). A sand layer, 10 to 15 sagenes (70 to 105 feet) thick, covers the mineral stratum, and, absorbing the dampness, protects the vein of pure crystallic salt. The cavern is lighted by several electric lamps.

Eighty workmen are occupied in this cavern. Some trace new lines for work, others make canals in the direction marked, and, when these reach the points indicated by the engineer, the bed is blasted with gunpowder in the same manner as is used for blasting stone.

A steam elevator serves for communication with the surface of the earth and for the carrying of salt. There is also a wooden screw staircase (485 steps), with platforms for rest. Owing to the salt walls, the wood of the stairs remains in good condition, and, in course of time, hardens more and more; iron parts, on the contrary, rust very soon. Dynamos and steam engines are placed in special buildings on the surface and serve not only for the lift, but also for the mill, which mechanically assorts the salt.

Since the construction of the railway, the excavation of four other caverns of the same dimensions has been planned.

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *December 19, 1902.*

NEW SOURCE FOR GERMAN COTTON.

A shipment of cotton has just arrived on German soil which, though insignificant in quantity, nevertheless possesses great interest in that it opens up wide possibilities for the future cotton-import trade of Germany. This shipment consists of four bales of cotton, imported by the Saxon Spinners' Union from German East Africa. The transaction was effected, it is said, through the Kolonialwirthschaftliche Kommittee, of Berlin. The Saxon Spinners' Union has in the past imported shipments of considerable size from Togo, but this is the first shipment from East Africa. This cotton is said to be the first successful crop raised outside of Egypt which possesses the character of the Egyptian cotton, and if further efforts prove fortunate it is to be expected that German East Africa may become an important source of cotton for German mills. The color of the cotton is said to be brownish yellow and the fiber long and silky.

The good results may to a certain extent be attributed to the skill of the American planters, whom the German Government engaged to go to East Africa and instruct the natives in the proper method of preparing the soil, planting the seed, and harvesting the product. This all goes to show that Germany's commercial policy includes an effort to make herself independent, as far as possible, of all foreign markets in the matter of raw materials.

J. F. Monaghan,
Consul.

Chemnitz, *December 8, 1902.*

FRANCE AND HER COLONIES.

The appearance of the general statistical reports for France is so delayed that it is impossible to base a report upon colonial matters upon later figures than those of the year 1900. During the year 1900, the total foreign commerce of France amounted to 11,510,000,000 francs ($2,221,430,000), this being an increase over the preceding year of $2,509,000. During the same year the total foreign commerce of all the French colonies amounted to $193,086,850, of which $184,894,000 represented the movement with France. Of this total colonial commerce, the part of Marseilles was $97,272,000, or 53 per cent, the results for the year showing a slight increase for this city, as compared with preceding years. To a large extent the impulse which the colonies receive from the parent country is derived from Marseilles, and Marseilles capital is employed largely in the exploitation of the colonies and almost entirely controls the means of communication by sea.

The commerce of the African continent, importations and exportations combined, amounted to $530,750,000 in 1900, thus divided:

British possessions	$193,000,000
French possessions	144,750,000
Portuguese possessions	19,300,000
German possessions	9,650,000
Tripoli, Morocco, Liberia, and the Transvaal	48,250,000
Egypt	115,800,000
Total	530,750,000

The foregoing does not seem to include the operations of Abyssinia, but as the Abyssinian Empire has no seaport, its commerce may be presumed to be included in the transactions of the French and British possessions, inasmuch as it necessarily passed through the ports of Djibouti or Berbera.

An Anglo-French commission is at present fixing the limits between the French Ivory Coast and the British Gold Coast. The same operation is to be undertaken between the Republic of Liberia and the French Ivory Coast, between the Kameruns and the Kongo. There remain also to be rectified the frontiers between the French and British domains in central Africa. Upon French soil railways have been projected everywhere, and exploitation has been commenced in a number of cases. The Dakar-St. Louis line in Senegal is now being successfully operated. The Senegal-Niger line is partially exploited and will probably be finished in three years, or twenty-six years after its commencement. Railway construction in French Guinea continues very slowly, and in the Ivory Coast colony contractors with sufficient capital and courage to face the certain difficulties of the situation have yet to make their appearance. In Dahomeyland, 100 kilometers (62 miles) of railway were open to exploitation in September, 1901, and by 1903 the distance will be doubled. The railway in Madagascar is well under way. The railway in French Somaliland is being actively constructed, and indeed the rails have already reached the station of Harrar, in Abyssinia, and advance work upon the line from Harrar to Addis-Ababa has been commenced.

Of all the French colonies, Algeria and Tunis excepted, those which interest Marseilles most directly are those of the west coast (Senegal, Guinea, Ivory Coast, and Dahomey). It is here that the most remarkable progress has been made. It is by comparing the results achieved in these colonies with those obtained in the British West African colonies that French colonial students satisfy themselves of their own success. The comparison is interesting.

The commerce of the four British West African colonies amounted in 1899 to $27,985,000 and in 1900 to $25,669,000; the commerce of the four French West African colonies amounted in 1899 to $26,055,000 and in 1900 to $28,950,000.

The French West African domain has been constituted, little by little, of small territories, comprising four or five colonies, having between them no cohesion and each one administered in a different fashion. It is the same situation that once existed in the four French colonies which have now been united under the name of Indo-China. This federation has given most satisfactory results, and it is now the policy of the French Government, progressively but with prudence, to form a West African union composed of Senegal, Guinea, Ivory Coast, and Dahomey. A governor-general has been named, having under his direction a lieutenant-governor in each of the colonies.

The splendid colony of Gaboon has not yet given the results expected. This region was divided into a number of concessions, the development of which was intrusted to French capital. According to the Marseilles Chamber of Commerce the owners of these concessions have undertaken burdens insufficiently studied and sometimes unknown, and in general too heavy to result in success. The complaint against the Government is that having conceded large territories upon terms always difficult, inadequate protection is given against the inroads made by British, German, Portuguese, Belgian, and Dutch houses already established upon the premises. The settlement of these cases involves international intervention in many instances, and a satisfactory solution is obtainable with difficulty. The foreign houses are unwilling to recognize the validity of concessions which ignore what they deem to be their vested privileges. The French position is that, having taken possession of these distant regions, where such government as existed was controlled by the natives—if it existed at all—and having by right of conquest become proprietors of such territories, they have become a part of the national domain, by the same title and under the same conditions as the territory of the French Republic properly speaking. The Government assumes, therefore, the right of administering such regions and of leasing or selling the land under terms and conditions agreeable to itself. The Government is not hesitating to grant concessions by virtue of these rights, and the foreign houses heretofore doing business without let or hindrance, and under only the laws set up by themselves, have protested, basing their protest upon the African international convention of Berlin, article 5 of which provides that the power exercising sovereignty shall not be authorized to accord a monoply or a favor under the head of commerce to anyone. The reply of the French concessionnaires is that the spontaneous products of the earth, as well as those resulting from agricultural industry, are beyond the limits of commerce, and the proprietor or farmer who sells the fruits of his property does not perform a commercial act properly speaking, and therefore, in the language of the Marseilles Chamber of Commerce in terminating its report, "the British pretensions are untenable." The report continues:

> The division of the Black Continent being consummated, the strong nations, foreseeing the future, prepare for the assault upon Asia.

France, after Russia and England, is the greatest European power in Asia, and has the greatest interest at stake. In this part of the world, the annual commerce of Great Britain with all of the Asiatic countries other than her own colonies amounts to $115,800,000, a sum equaled by the commerce of France with all the regions of Asia other than the French colonies. The rapid progress of the Indo-Chinese colony is pointed out as a proof of the French capacity to administer. The total commerce of British India is put down at $636,900,000; the total commerce of French Indo-China is estimated at $71,796,000. These latter figures have increased 65 per cent in four years. The colony has now been controlled twenty years by France, and the future is considered most encouraging.

The importations and exportations between the French colonies and Marseilles and the whole of France during 1900 have been thus divided:

Country.	Imports into—		Exports from—	
	Marseilles.	France.	Marseilles.	France.
Algeria	$16,178,017.00	$33,479,141.00	$37,790,002.00	$53,290,388.00
Tunis	3,051,380.00	5,095,779.00	8,535,276.00	9,772,941.00
Senegal	2,579,623.00	6,106,134.00	1,080,327.00	6,858,062.00
West coast of Africa	951,448.00	2,220,272.00	896,756.00	2,775,726.00
Madagascar	1,220,096.00	1,434,955.00	4,157,490.00	8,663,384.00
Mayotte and Nossé-Bé	114,411.00	369,595.00	279,593.00	573,210.00
Reunion	1,084,863.00	3,667,386.00	1,506,936.00	2,695,052.00
India	1,376,040.00	1,943,510.00	806,186.00	1,229,410.00
Indo-China	3,242,849.00	7,203,532.00	7,356,434.00	10,967,611.00
New Caledonia	218,416.00	1,080,993.00	1,713,454.00	2,180,707.00
Tahiti	30,947.00	320,959.00	56,758.00	107,887.00
Guiana	1.54	51,531.00	388,612.00	1,538,017.00
Martinique	205,007.00	4,301,584.00	554,362.00	3,246,067.00
Guadeloupe	774,459.00	2,140,370.00	637,865.00	2,321,790.00
St. Pierre and Miquelon	639,122.00	7,549,774.00	77,039.00	1,533,578.00

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *December 12, 1902.*

RAILWAY CONSTRUCTION IN AFRICA.

In continuance of my reports on the Cape to Cairo Railway,* it is now noted that the British South Africa Company, whose directors recently visited Rhodesia, has decided to expend $10,000,000 on railways in the Dark Continent. One-half of the sum will be used next year on railroad construction south of the Zambezi; the other $5,000,000 will be voted for the purpose of carrying the Cape to Cairo line some 300 miles north of the Zambezi to the bend of the Kafue, in which region extensive discoveries of copper, lead, and zinc have been made. When the work in contemplation has been carried out, Rhodesia will have over 2,500 miles of railway.

The recent grant to Mr. Robert Williams (whose concession in the Kongo Free State was described in my report of May 10, 1902),† for constructing a railway from Lobito Bay, on the west coast of Africa, to Katanga,‡ will form another valuable feeder to the Cape to Cairo line. The distance is 870 miles, and the railroad must be completed in eight years from January 1, 1903. A company with a capital of $10,000,000 will be organized within six months, with head offices in Lisbon and subject to Portuguese law, to construct the railway.

It is admitted in commercial and financial circles at home that American efforts abroad must embrace even the most distant fields. Constant exploitation of European markets in disregard of new and undeveloped territory is a short-sighted policy. Africa furnishes an inviting field for both our exporters and our capitalists. Only 1,300 miles of railway have still to be constructed on the Cape to Cairo line. The rest of the route will be by water, crossing the lakes and following the course of the Nile.

Correspondence with regard to the Cape to Cairo Railway and its branches may be addressed to Mr. J. F. Jones, secretary of the British South Africa Company, Limited, 15 St. Swithin's Lane, London, E. C.

G. BIE RAVNDAL,
Consul.

BEIRUT, *December 20, 1902.*

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*ADVANCE SHEETS Nos. 1393 and 1465; CONSULAR REPORTS Nos. 264 and 266 (September and November, 1902).

†ADVANCE SHEETS No. 1393; CONSULAR REPORTS No. 264 (September, 1902)

‡ADVANCE SHEETS No. 1544 (January 14, 1903).

LUMBER AND TIMBER TRADE IN LOURENÇO MARQUEZ.

Throughout South and Southeast Africa there is a great and rapidly increasing demand for lumber and timber. The forests of South Africa are composed principally of stunted and gnarled native trees, fit only for wagon making and fence building.

Within the past fifteen years several varieties of Australian gum and wattle trees have been planted in considerable numbers in certain parts of South Africa, but their wood is suitable only for fence posts and for short mining props.

Practically all of the lumber and timber required by carpenters, builders, and joiners and by railway, mining, and harbor-works contractors must be imported.

The spruce lumber used by carpenters and builders in this country is generally brought from Baltic ports and is known to the trade as "deals." These come in the following dimensions: One-half of an inch by 6 inches and of various lengths, planed on one side, tongued and grooved, beaded on the edges, and with a central bead running down the middle of the board (this class of lumber is generally used for sheathing the walls and ceilings—as a substitute for laths and plaster—of cheap, galvanized-iron houses); seven-eighths of an inch by 6 inches and of various lengths, planed on one side, tongued and grooved, and used principally for flooring boards; 2 by 3 inches, 2 by 4 inches, 3 by 3 inches, and 3 by 4 inches, used principally for framing, corner posts, scantlings, and rafters in lightly built galvanized-iron houses; 2 by 6 inches, 2 by 8 inches, 3 by 6 inches, 3 by 8 inches, and 4 by 4 inches, used for floor joists, rafters, etc., in stone and brick buildings.

Special qualities of lumber, such as clear American poplar, white pine, and Oregon pine, are used for building bodies of wagons and carts, and for store, office, and house fittings and furnishings.

South Africa draws its timber supplies from many different countries. Heavy Australian timber is used for piling by harbor engineers, as this sort of wood is the only kind that has been found to be proof against the ravages of the teredo worm, which abounds in South and East African waters.

Both Australian timber and hard timber from the East Indies have been imported for use as railway sleepers in parts of the country that are infested with white ants. These ants can destroy a spruce or a cedar sleeper in a few months. For this purpose, therefore, only very hard woods or creosoted hard pine are used; but even these sleepers have been largely superseded by those made from pressed iron or steel.

Practically all timber used in mining, engineering, and other railway work comes from either the United States or from British Columbia; but the British Columbia pine is getting to be looked upon with disfavor because of its lack of durability and its generally spongy character, as compared with pine from Oregon and Washington and with pitch pine from our Gulf ports.

The present indications are that the importation of British Columbia pine into this country will decrease, and that Oregon and Washington timber and Southern pitch pine will take its place.

Almost every dimension of heavy timber is in demand in this country, from 4 by 4 inches for ordinary construction to 12 by 12 inches and even 14 or 16 inches by 20 inches, and of great length, for the frames of head gears of mines, foundations for stamp batteries, and for railway, bridge, and harbor works.

A conservative estimate of the quantity of American pine and pitch-pine timber that could be profitably handled at this port during the coming year would be not less than 100,000 tons, and this figure could no doubt be largely increased in 1904.

Messrs. Allen, Wack & Co., one of the oldest and strongest firms in Lourenço Marquez, are desirous of getting into touch with large exporters of Oregon pine and of Southern pitch pine.

Other local importers who are interested in this trade are Wilcken & Ackermann, Limited, Messrs. DeWall & Co., the Lingham Timber and Trading Company (agents for Messrs. Neame & Co., of London, England), and Messrs. Parker, Wood & Co., of Johannesburg.

W. STANLEY HOLLIS,
LOURENÇO MARQUEZ, *December 9, 1902.* *Consul.*

CUBAN CUSTOMS TARIFF.

Under date of December 27, 1902, the Department has received notice from Minister Squiers, of Habana, that according to a decree published in the Gazette of December 26, 1902, paragraph 318 and the notes to paragraphs 215 and 216 of the tariff order of September 28, 1901, will remain in force until the new customs tariff takes effect, but not to exceed six months. The paragraphs are quoted below:

> 318. The following articles, when imported direct by a steam or street railroad company of the island of Cuba, for the exclusive use of said railroad within twelve calendar months from the promulgation of this order, shall be entitled to entry at 5 per cent duty ad valorem, under such conditions and guaranty as the chief of the customs service may exact or direct:

This concession to railway material is limited exclusively to the following enumerated articles: Passenger coaches, complete, erected or knocked down; freight cars, complete, erected or knocked down; pine wood prepared especially for freight cars; locomotives and tenders, locomotive boilers and locomotive furnaces, locomotive boiler plates and tubes, locomotive and tender frames, and tanks for locomotive tenders; turntables, transfer bridges; iron or steel bridge work, riveted or rolled; iron or steel rails, points, crossings, signals, gate crossings and metal ties; trucks for cars, tenders, and locomotives, complete, and parts thereof; splices, fish plates, fish-plate bolts, spikes, frogs, semaphores, switches, steam shovels complete, rock crushers complete, steam hammers complete; dumping cars, hand cars, small motor cars, railway velocipedes, derrick railway cars complete, ballast cars; air brakes, automatic couplings; railroad ties of wood; castings and springs for railway cars, coaches, tenders, and locomotives; electric motors and dynamos and machinery, exclusively used for furnishing power and light for railways.

If at any time after importation the electric plant is used to furnish power or light for any other purpose, it shall thereby become liable to duty under the respective paragraphs of group 2, Class XI.

Stationary pumps and boilers for repairing shops, including transmission shafts, pulleys, and belting for same.

215. Machinery and apparatus for making sugar and brandy, 10 per cent ad valorem. ‡§

Note.—The articles included in paragraph No. 215, which shall be imported within twelve months from the date of the promulgation of this order, shall be entitled to a rebate of 50 per cent of the duty specified in said paragraph, under such conditions and guaranties as the chief of the customs service, with the approval of the military governor, may direct. This concession is limited exclusively to those articles enumerated in subdivisions *a* and *b* of note § to paragraph No. 215.

216. Agricultural machinery and apparatus, 10 per cent ad valorem. ‡**

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‡ For the application of duty, it should be observed: (*a*) That the machine must be complete—complete machines include tubes (fluses), belting, etc., which form an integral part of such machines, but no spare parts; (*b*) that spare parts are dutiable, according to No. 222 [20 per cent ad valorem] when of copper and to No. 226 [20 per cent ad valorem] in all other cases; (*c*) that to be considered as complete, machines must be imported in one sole shipment. Machines imported in two or more shipments shall be liable to the duties stipulated in Nos. 222 and 226, except in the case when a previous and special authorization has been granted by the chief of the customs service.

§ This paragraph includes—

(*a*) The following articles, whoever be the importer: Weighing machines (platforms) for weighing sugar cane; complete machines of every kind for grinding cane; cane shredders; sugar clarifiers; complete apparatus for diffusion; purifying apparatus; filters and filtering apparatus; apparatus called "trenes jamaiquinos," complete; furnaces for making animal black; steam desiccators (trampas) and granulators; centrifugal machines, mixing and lifting (subidores) machines, with their motors; vessels called "bombonas" and "cachimbas;" skimmers, distributers, and sugar molds; apparatus or vessels ("tachos") acting in vacuum; also their machines, pipes, and cocks, of copper or iron; polarimeters; skimming pails (cachaceras); sugar crushers; cars (porta-templa); sulphurous-gas apparatus; dumping apparatus for cars (porta-templa); cane-transporting apparatus; furnaces for burning bagasse; automatic circulator and regulator for vacuum-kettle apparatus; apparatus for compressing sugar.

(*b*) Also the following articles when they are imported directly by or for planters, on proof of the installation thereof in their establishments: Beltings for granulators, centrifugals, and lifters (subidores); tubes; flues; cocks; shafts, crowns, and rolls for sugar mills; boilers; steam plows; donkey engines with or without pumps; carts for the conveyance of cane and the output of the works; stills; gasometers for lighting the works; electric plants and apparatus for use exclusively in lighting the works of a sugar estate or farm (*Note*—If the electric plant or apparatus is for any other use than that pertaining to a sugar plantation or farm, it will be dutiable under paragraph No. 223—20 per cent ad valorem); windmills; fire brick for the installation of boilers and furnaces; portable rails; plantation railways (*Note*—By railways are understood the articles and materials mentioned for railways under the special provision to paragraph No. 318, and which are intended for the exclusive use of railways for sugar plantations).

** The machines and apparatus mentioned in this paragraph are those employed by farmers and agriculturists for preparing the ground and gathering the crops; also those employed in order to clean the crops and improve them without essentially changing their nature.

Note.—The articles included in paragraph No. 216, which shall be imported within twelve months from the date of the promulgation of this order, shall be entitled to a rebate of 50 per cent of the duty specified in said paragraph, under such conditions and guaranties as the chief of the customs service, with the approval of the military governor, may direct.

PREPARATION OF ZACATON IN MEXICO.

Among the numerous plants that Mexico produces that are being utilized in the industries of various countries is zacaton, the Spanish name for broom root. It belongs to the family of Graminaes, *Epicampes macroura*, and is found in a wild state in many sections of the country. Having been classed as a weed, I believe that it has never been cultivated to any extent. The valuable part of this plant is the root. This may be gathered at all seasons of the year. A peon digs it up with a tool resembling a hoe, and it is subjected to a cleaning operation by which the root is deprived of its thin skin and all objectionable matter. The root is then exposed to the fumes of sulphur, for the purpose of bleaching it to the pale, yellowish color preferred by the trade; it is then sorted by quality, the preferred parts being the thin and straight, or only slightly curly, ones.

Zacaton is packed in bales for shipment, the material being compressed by a primitive contrivance. Experiments have proven the beneficial effects of cultivation, the root produced being superior to that of the wild species.

I believe that zacaton could be cultivated in some sections of the United States. The plant is not found in the so-called hot lands, but at a higher altitude; consequently, strictly speaking, it can not be classed among the tropical growths. In view of its ready sale and valuable returns, the experiment is worth trying.

France and Germany are the principal markets for zacaton, fully 90 per cent of the entire yearly shipments from Veracruz going to those countries, the remaining 10 per cent being shipped to the United States, Belgium, Spain, England, Holland, etc.

The following prices, per 50 kilograms (110 pounds), are quoted for zacaton at Hamburg:

	Marks.
Low grade	30 to 34=$7.14 to $8.09
Ordinary	39 to 42= 9.28 to 9.99
Middling	43 to 46=10.23 to 10.94
Fine	50 to 58=11.90 to 13.80
Extra superior	63 to 75=14.99 to 17.85

The average value at Hamburg is $11 to $43 in United States currency per 50 kilograms.

The shipments of zacaton through the port of Veracruz amount to 2,500 metric tons yearly, valued at $800,000 at the point of embarkation.

J. GONZALES PAGÉS,
Vice-Consul.

VERACRUZ, *December 26, 1902.*

LOAN IN NICARAGUA.

President Zelaya has this day issued a decree asking for a loan of 1,000,000 pesos* ($361,000) from the merchants and business men of the country, both native and foreign, for which the Government will issue bonds, to be offered in quantities of not less than 1,000 pesos ($360) to the business men who, on November 2, agreed not to buy silver at a higher rate than 100 per cent premium. In consequence, chiefs of custom-houses will liquidate policies with an increase of 100 per cent on the present tariff. For about one month the increase had been 180 per cent.

The new bond to be issued is to be used to retire the national paper currency from circulation. Twenty-five per cent of all customs duties shall be payable in these bonds.

The loan shall be distributed between the different departments of the Republic as follows:

Department.	Amount.	Department.	Amount.
Leon	$200,000	Jinotega	$20,000
Granada	140,000	New Segovia	10,000
Managua	120,000	Chontales	10,000
Chinandega	80,000	Department of Zelaya, including Cabo Gracias a Dios and San Juan del Norte	300,000
Rivas	40,000		
Masaya	30,000		
Matagalpa	30,000	Total	1,000,000
Carazo	20,000		

CHESTER DONALDSON,
Consul.

MANAGUA, *December 12, 1902.*

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*The valuation of the Central American peso by the United States Mint January 1, 1903, was 36.1 cents.

STRIKE AT BUENOS AYRES.

Consul Daniel Mayer reports from Buenos Ayres, November 21, 1902:

The situation in this port has become serious, and a general strike is threatened. Yesterday, the men out on strike numbered something like 4,000; to-day the figure will be raised to 20,000, since 5,000 stevedores will have gone out and all the cartmen. So far, the sailors and factory hands have abstained from joining the movement. At attempt was made by the strikers yesterday to prevent the sailors from working, but it was unsuccessful. An endeavor is also being made to induce the laborers in the sheds of the Great Southern Railway Company to stop work.

Strong agitation is on foot to obtain the sanction of Congress to what is termed "ley de residencia." This measure (the constitutionality of which is open to serious doubt) would enable the authorities to make short work of many of the leading anarchists who are mainly responsible for the strike.

Public feeling as represented by the commercial world is strongly adverse to the pretensions of the strikers. Business in many quarters is at a complete standstill.

Under date of November 22, Mr. Mayer says:

The strike has now assumed general proportions, and trade, both interior and exterior, is paralyzed for the time being.

Last night, the men's committee resolved that every vehicle in town should to-day remain motionless. The bakers have also joined the strike. There have been several clashes with the police, with resultant bloodshed.

Work is partially continued in the Central Produce Market by a few hundred men guarded by cavalry and infantry, but in the port all operations are suspended.

CIVIL-MARRIAGE LAW OF ECUADOR.

The Department has received from Minister Sampson, of Quito, under date of December 10, 1902, copy and translation of the civil-marriage law of Ecuador, which is summarized as follows:

Civil marriages must be celebrated by a civil judge in the presence of his secretary and two competent witnesses from the native town or district of either one of the contracting parties. Any other Government officer, with the written authority of the judge, may legally perform the marriage ceremony, provided all other formalities have been carried out. Before the ceremony the contracting parties, or their attorney, must declare before the judge, secretary, and witnesses their desire to contract matrimony, with name, surname, age, nationality, profession, and residence, as also that of the parents of both contracting parties. In case of previous marriage, the name, surname, and nationality of the deceased husband or wife must be given; the name and age of legitimate descendants, if any, of any previous marriage dissolved by death or divorce; inventories of property belonging to minors or wards; the names of persons whose consent is required in case of minors, and the legal, written consent in case of absence; also the declaration that there exists no legal objection to the marriage. Proof regarding the above requirements must be given by at least two witnesses. The judge will cause to be affixed to the door of his office for eight consecutive days the notice of an intended marriage. At the request of the interested parties, suitable reasons being given, the judge is empowered to dispense with this formality. The marriage must be celebrated within thirty days after the execution of these formalities; if not, said formalities must be repeated. Immediately after the ceremony, the clerk shall make a detailed record of the above, which shall be signed by the contracting parties, the witnesses, the judge, and the secretary. This record shall be remitted to the corresponding chief of the civil register within eight days, under penalty of a fine of from 10 to 100 sucres ($4.87 to $48.70). Consuls and consular officers are empowered to act as judges in the performance of marriage ceremonies. The civil marriage must precede the religious ceremony. Ministers of any religion who shall proceed to celebrate marriage before the receipt of a certificate in regular form issued by competent authority shall be subject to a fine of 500 sucres ($244) and three months' imprisonment for the first offense and 1,000 sucres ($487) and six months' imprisonment for the second.

MEAT PRODUCTS IN PARAGUAY.

In response to inquiries from the United States, Consul J. N. Ruffin, of Asuncion, has obtained the following information as to the meat industry in Paraguay, with details* as to the cost, etc., of an establishment for preparing tasajo, extract of beef, and other products for market:

In order to form a beef establishment in Paraguay with a capacity for 30,000 head of cattle, there will be needed some 3 square leagues of land—situated on the banks of the Paraguay or the Alto Parana, which would provide abundant pasture—a deep port, and good roads. The owner will have to buy animals which he can fatten. It is not advantageous to kill animals of less than 4 years. The slaughtering should commence in the month of November and last until June. Cattle yards should be constructed of hard wood. One should be about 160 feet square; another, where the animals which are destined for slaughter the next day are kept, should be round, about 60 feet in diameter. The floors should be of stone in order to avoid dust. The slaughtering pen is composed of a shed 150 feet long, 50 feet wide, and 20 feet high. A railroad should pass through the center of the shed. One part should be used for skinning the animals and the other for the deposit of the meat to get cold. The floor ought to be so constructed that the blood and water will flow into small canals around the shed, made of Portland cement and lime. In this same shed they cut up the carcass and throw it into a solution of salt, in which it remains until the following day. In an adjoining compartment the bones of the carcass are broken up and the horns separated, and the tripe is washed and thrown into the digester. There should be four digesters with a capacity for 60 head of cattle each.

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* For further particulars, see ADVANCE SHEETS No. 1402; CONSULAR REPORTS No. 264 (September, 1902).

EXTRACT OF BEEF.

It is advantageous to construct a building of brick, in order to have a more constant temperature. The process is as follows: Beef which is not suitable for tasajo is beaten up and ground by steam machinery. A mass similar to that destined for sausage making goes to large caldrons to be cooked. During the cooking all of the fat is taken off with large spoons. Seven or nine pounds of fine beef lard is calculated to each head of cattle. The beef, having all of its juice thus extracted, is called chatasca, and is extended upon a floor of brick or stone to be dried in the sun or by steam. It is then ground and packed into bags, to be exported to foreign countries for the alimentation of birds or hogs, for fertilization, etc.

The liquid goes to the refrigerating pots and from these to filters. It is calculated that 30 pounds of beef will make 1 pound of extract.

PRESERVED MEATS.

In this department is installed the machinery for refrigeration and the refrigerative chambers. The pots for cooking the beef, the tinware shop, and the deposits of preserved meats are also in this department. The edifice should be of brick, with floors of Portland cement. It should be of sufficient size for the fabrication of 2,000 tins of preserved meat of 1 kilogram (2.2 pounds) each daily.

The steam machinery, with two caldrons with grates for wood, ought to be of 30 or 40 horsepower.

TASAJO.

The meat is cut and thrown into large deposits containing a solution of salt of 25° to 30°, and on the following day it is taken out and dried. First the meat is spread out, then collected into piles and covered up for two or three days. The operation is repeated two or three times, when it is ready for baling and shipping. When the weather is favorable, this can be done in fifteen days.

HIDES.

The hides should also be well salted, as they bring a higher price in the market than those that are dried.

BLOCKADE OF VENEZUELAN PORTS.

GERMAN PROCLAMATION.

The Department has received from Ambassador Tower, of Berlin, under date of December 22, 1902, translation of the official proclamation of the blockade by Germany of Venezuelan ports, as follows:

REGARDING THE BLOCKADE OF THE VENEZUELAN PORTS OF PUERTO CABELLO AND MARACAIBO OF DECEMBER 20, 1902.

The Government of the United States of Venezuela having refused to satisfy the demands of the Imperial Government duly communicated to it, the blockade of the ports of Puerto Cabello and Maracaibo is decreed.

The blockade comes into effect on December 20, 1902.

Ships under other than Venezuelan colors which have cleared before the date of this proclamation from West Indian or eastern American ports are given a time allowance, this being twenty days in the case of sailing ships and ten days in that of steamships. Sailing ships from all other ports are given a time allowance of forty days and steamships one of twenty days.

Ships under other than Venezuelan colors lying at the date of this proclamation in the blockaded ports are given a time allowance of fifteen days. Ships attempting to violate the blockade will be subject to the rules applicable according to international law and the treaties with the neutral powers.

The Chancellor,
BERLIN, *December 20, 1902*. COUNT VON BUELOW.

ITALIAN PROCLAMATION.

Under date of December 23, 1902, Ambassador Meyer, of Rome, sends the following translation of the official announcement of the participation of Italy in the Anglo-German blockade of Venezuelan ports:

The United States of Venezuela not having satisfied Italian complaints, His Majesty's Government, with its naval forces, has resolved to participate in the blockade of the Venezuelan ports declared by the British and German Governments. This blockade will take effect on and after December 20, under the following conditions of delay:

1. Ten days for steamers and twenty days for sailing vessels starting before December 20, from the ports of the West Indies and ports of the eastern coast of the American continent.
2. Twenty days for steamers and forty days for sailing vessels starting from all other ports.
3. Fifteen days' delay for ships which are in the blockaded ports.

Ships which try to run the blockade render themselves liable to all the measures authorized by the law of nations and by the various treaties between His Majesty the King of Italy and the other neutral powers.

ROME, *December 19, 1902*.

GERMANY'S TRADE WITH VENEZUELA.

In view of the present difficulties between Germany and Venezuela, it may be of interest to know the amount of trade between these two countries. I have compiled the following data from the latest statistical yearbook for the German Empire:

The imports into Germany from Venezuela for the five years from 1897 to 1901, inclusive, were:

Year.	Value.		Percentage of total imports.
	Marks.		
1897	10,900,000	$2,594,200	0.2
1898	9,700,000	2,308,600	.2
1899	9,400,000	2,237,200	.2
1900	9,700,000	2,308,600	.2
1901	9,400,000	2,237,200	.2

The German exports to Venezuela were:

Year.	Value.		Percentage of total exports.
	Marks.		
1897	5,500,000	$1,309,000	0.1
1898	4,300,000	1,023,400	.1
1899	4,000,000	952,000	.1
1900	5,000,000	1,190,000	.1
1901	7,000,000	1,666,000	.2

It will be seen that the trade between these countries is very small. The exports from Germany to Venezuela for 1901, however, show a very considerable increase over any of the previous four years, both absolutely and relatively.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *December 17, 1902.*

DEVELOPMENT OF NIAGARA POWER.

The most important development of the year in this consular district is the enlarged production of electric power at Niagara Falls. This has been in use at Niagara Falls, N. Y., for several years past, and the demand for this cheap and constant power has been so urgent that it has been impossible for the power company to keep pace with it. The original development of 50,000 horsepower at Niagara Falls, N. Y., was utilized some time ago, and the company has been working night and day to double the capacity of the plant, the tunnel providing for a discharge of water that would develop 100,000 horsepower. The second shaft has been completed, the machinery has been installed, and within a few months the full capacity of the Niagara Falls, N. Y., plant will be at the service of the Niagara frontier.

Realizing that the plant on the New York side of the cataract would only suffice for a short period, the power company commenced operations on the Canadian side of the river in August of last year. The work has been pushed rapidly, and it is expected that by next August 50,000 horsepower will be available. Already, the demand is so great that last week the power company let a contract for extending the wheel pit at once, so as to develop 110,000 horsepower instead of the 50,000 first contemplated. The two companies are practically identical as to stockholders, the Canadian company being officially designated as the Canadian Niagara Power Company.

A radical departure from the installation on the New York side of the river is the utilization of dynamos of 10,000 horsepower each instead of the 5,000 units that were installed in the original power house. The 5,000-horsepower dynamos were such mammoth experiments that it was feared they would prove impracticable, but now they are to be succeeded by dynamos of twice their capacity. Quite a marked saving is effected in the construction of a 10,000-horsepower dynamo over two of 5,000 each.

The fact that cheap Niagara power is going to do all that was claimed for it in the way of attracting industrial concerns to the Niagara frontier is being so thoroughly demonstrated that a second company—the Ontario Power Company—has secured rights from the Canadian Government. The development of its plant commenced last April, and 50,000 horsepower will be the initial product, but this will be increased to 150,000 horsepower. Instead of being carried in an underground tunnel, the water is directed into flumes, carried to the brink of the Niagara gorge, and then dropped into the river through penstocks, which develop the power.

These two companies are backed almost exclusively by United States capital. A third company, which claims to be wholly Canadian, has applied to the Government for the privilege of developing 100,000 horsepower near the two plants now under construction. A full hearing of all the parties interested was given by the Government on Friday, December 19, at Toronto, and a decision will be announced shortly. As special stress is laid on the fact that a Canadian company should have preferential rights, it is believed that the petition will be granted. The Canadian Government exacts in all cases that 50 per cent of the power developed must be provided to Canadian consumers if called for; the balance will be exported to the United States.

While millions of dollars are being expended in developing these various power plants, the revenue will be enormous. Comparatively little labor is required, once the energy of Niagara is under control. When the 350,000 horsepower now in process of development is placed on the market, the gross income of the power companies will be in the neighborhood of $7,000,000 per year. This is figuring the price at $20 per horsepower a year, which is somewhat lower than the present average rate. As this provides constant power every day of the year, twenty-four hours a day, with thorough cleanliness, little fire or accident insurance, no expensive equipment for generating steam with its heavy annual wear and tear, no engineers or firemen—simply the turning of a lever—it is seen that for many lines of industry Niagara electric power presents remarkable inducements.

The industrial growth of the Niagara frontier in the past few years has been marvelous. It is prophesied that within ten years

1,000,000 horsepower will be in course of development. Up to the present time, the effect on the volume of water passing over the falls is not noticeable, even with the most careful measurements. A short time since, for the purpose of inspection, all the water was shut off from power development for a number of hours. Competent men were stationed at different points on the river and at the brink of the falls to measure the difference in the river level when the water producing 100,000 horsepower was cut off. The men were unanimous in their reports that they could not detect the slightest variation. A heavy wind blowing up or down Lake Erie will raise or lower the Niagara River several feet, but only those who are well acquainted with it will notice any special difference in the discharge at the cataract. The main change is in the middle channel of the river and is principally shown in the rate of discharge, rather than the raising or lowering of the river.

HARLAN W. BRUSH,
NIAGARA FALLS, ONT., *December 20, 1902.* *Consul.*

AMHERSTBURG-WINDSOR ELECTRIC ROAD.

The United Railway Company, of Detroit, Mich., has nearly completed a line from Windsor to Amherstburg. The company bought the right of way from the property owners adjacent to the highway, so that the roadbed is not in the highway proper, as in most cases. Seventy-pound steel rails made in Sault Ste. Marie, Ontario, are being used. All bridges are of steel and the cars will be of the latest suburban pattern. The road follows the bank of the Detroit River all the way from Sandwich to Amherstburg, a distance of 15 miles. It passes through a rich and thickly settled territory. Amherstburg has already become a favorite summer resort, especially for Detroit people. During the season of 1902, the Detroit, Belle Isle, and Windsor Ferry Company brought about 150,000 passengers to Amherstburg and to Bois Blanc Island, in the Detroit River. The electric road will make this place much more desirable for summer residences, and property has already advanced largely in value.

CHESTER W. MARTIN,
AMHERSTBURG, *January 1, 1903.* *Consul.*

RAILWAY EXTENSIONS IN BRITISH COLUMBIA.

Consular Agent Pollock, of Fernie, writes:

The Great Northern Railway Company has completed the line from Jennings, Mont., to Morrissey, British Columbia, about 9 miles south of Fernie. The road has been operating since November 10, 1902, and all of the coal and coke exported from this district to the United States is now sent over this line. It is currently reported that the construction will be continued as far as this town, and perhaps as far as Michelle, 25 miles east.

The mines at Morrissey are getting in good shape to produce a large tonnage of coal during the coming season, and will in a short time employ 1,200 men. Nearly all of the machinery used at these mines is of American manufacture.

The Crows Nest Pass Coal Company, of this Province, during the eleven months ended October 31, 1902, produced 365,729 tons of bituminous coal and 95,294 tons of coke. Of this there was exported to the United States 97,413 tons of coal and 23,858 tons of coke.

The following was recently published in the newspapers of this Province:

On January 1, the Great Northern Railroad will take over the Great Falls and Canada road, which contractors have been working on all summer to widen to standard gauge, and on that date the first official Great Northern train will be placed in operation between Shelby Junction, on the main line, and Great Falls, on the Montana Central, furnishing a short line to southern Montana and the connections of the Great Northern in that part of the Northwest.

On the same date the Alberta Coal Company, from which the Great Northern purchased the southern division of the Great Falls and Canada over a year ago, will have completed the widening of the nothern part of the line from Shelby Junction across the Canadian border to Lethbridge, Alberta, Canada, where connection is made with the main line of the Canadian Pacific and with the Crows Nest Pass road.

The completing of the work of widening the Great Falls and Canada will be the means of working a change in traffic over the Great Northern, and will materially shorten the distance for all classes of traffic to southern points.

L. EDWIN DUDLEY,
Consul.

VANCOUVER, *December 24, 1902.*

PROPOSED LABOR ARBITRATION IN BRITISH COLUMBIA.

At the last session of Parliament, a bill was introduced for the settlement of labor disputes by arbitration. The minister said he would not ask for the passage of the bill at that session, preferring to submit it for the consideration of the Parliament, the people, the railway companies, and their employees during the year. It is expected that it will be brought forward at the next session and its passage urged.

The measure declares strikes and lockouts illegal, provides seven boards of arbitration, one for each Province (the Northwest Territory is grouped with Manitoba), with a central board at Ottawa. In case any railroad declares a lockout, it becomes liable to a fine equal to the amount of salary, wages, or other remuneration (computed for the period covered by such lockout) which would have been paid such employees if they had continued to serve the company; and it shall also forfeit to each of said employees a sum equal to double the amount of such salary, wages, or remuneration.

Any employee who goes on strike shall be liable to a fine equal to the amount of his salary, wages, or remuneration (computed for the period covered by the strike) which but for such strike would have been payable to him if he had continued to serve the company in accordance with the terms of his hiring.

It is made an offense for anyone to incite a railway company to declare a lockout or to incite any employee to go on strike.

Provision is made for selecting the members of the several boards, and their powers and duties are defined; a penalty is imposed of not less than $100, or more than $1,000, for each day that any railway company fails to comply with the award. The bill provides that there shall be no appeal to any court from the decision of a board of arbitrators.

A suggestion recently made is that each union shall become incorporated and accumulate sufficient capital to make the body responsible for the breach of any contract it may make with the employers. This proposition is attracting considerable attention among workingmen. Just how the capital of the proposed organizations shall be used or invested is the point likely to create the greatest difficulty.

L. EDWIN DUDLEY,
Consul.

VANCOUVER, *December 15, 1902.*

IMMIGRATION INTO NORTHWEST CANADA.

The large immigration from the United States into the Northwest Territory is overflowing into the eastern portion of British Columbia. There are considerable quantities of Government land available for settlers, which are offered on very reasonable terms. In the mining districts, there is always an excellent market for the products of agriculture, and immigrants who secure favorable locations can do well here; although I am doubtful if there is a better opening for settlers in British Columbia than is afforded by the adjacent States of the Union.

CAUTION TO INVESTORS.

I deem it my duty to speak a word of caution regarding investments in mineral properties in this Province without thorough examination as to their value. I observe that some properties which have not been developed to any extent are being largely advertised with a view to selling stock. These "prospects" may eventually become valuable mines, but the investor now takes the chance of losing every dollar expended in the purchase of shares. If investors will make inquiry through this consulate, I shall be glad to procure for them all available information regarding any particular property. The Minister of Mines and the provincial mineralogist have examined most of the properties in the Province and are well-informed as to their value, present and prospective. They may be addressed at Victoria, the capital of the Province. A stranger contemplating an investment would do well to consult these officers.

L. EDWIN DUDLEY,
Consul.

VANCOUVER, *December 15, 1902.*

NOTES.

Architectural Contest in Greece.—The following has been received from Consul F. W. Jackson, of Patras:

Owing to the many inquiries which have reached me concerning the church architectural contest, referred to in my report of August 11, 1902,* to which it has been found impossible to give separate answers, I give herewith a few suggestions which may be taken into consideration in preparing plans for the contest of the second degree, if received too late for those of the first degree.

1. The proposed edifice will be constructed largely of cut stone. Extensive deposits of building stone are found across the gulf from Patras, two to three hours' distant by sailing vessel. Expert stonecutters are to be had from the immediate vicinity.

2. Large quantities of marble will be employed in construction. The amount of marble to be used is variously estimated, and may be expected to exceed $40,000 in all.

3. All estimates should be based upon the supposition that walls are to be elaborately frescoed.

4. The general cost of unskilled labor should be reckoned at 40 to 50 cents per day. No estimates can be made for skilled labor.

5. The contest for the first degree closes at noon of February 13, (January 31, Greek calendar), 1903. Contestants in doubt as to the proper address may send their plans in care of this consulate, labeling them "Architectural contest."

To all inquirers, I have at once mailed circulars which should enable our architects to work on an equal footing with all others, and, if the plans are sufficiently Byzantine in general effect, their chances of success should be considered as good as those of England, Germany, or France.

Sulphuric Acid on Dried Fruit.—Ambassador White, of Berlin, in a recent dispatch to the Department, reports that as considerable quantities of sulphuric acid have been found in dried fruits imported into Germany, it is likely that regulations restricting the importation of such comestibles may be issued; and he suggests that interested parties in the United States should be cautioned to prepare dried fruits for export in such a manner as to prevent the presence of sulphuric acid. The Secretary of Agriculture advises that the use of sulphur fumes peripherally in the preparation of fruits for desiccation and evaporation is quite a universal custom, not only in this, but in other countries, and that the use of sulphur fumes on the cold fruits, followed immediately by the application of heat for evaporation or desiccation, does not result in a product which is in any sense inimical to health; that almost all of the sulphurous acid which attaches itself to the fruit, or becomes absorbed by its peripheral juices, is dissipated during desiccation, or a very infinitesimal part of it becomes oxydized to sulphuric acid; and that minute quantities of sulphuric acid are found in almost all food products, and therefore the presence of small amounts of this acid in foods can not be regarded as deleterious.

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*ADVANCE SHEETS No. 1441 (September 11, 1902).

Tea Culture in the Caucasus.—Consul-General W. R. Holloway, of St. Petersburg, under date of December 9, 1902, writes:

The experiments in tea culture in the Caucasus during recent years have proved eminently successful, and the Minister of Agriculture and Imperial Domains is now taking steps to establish the industry on a sound working basis. The climate and other conditions are all in favor of the new enterprise. The experiments were made by a few of the largest Russian merchants and by experts acting for the Ministry of Imperial Domains. The latter will next year bring tea cultivators from China, India, and Ceylon, to act as instructors. The yield of Caucasian tea this year was 13½ tons. It was of three qualities and sold as follows to the wholesale dealers: Appanage tea, first quality, 2.20 rubles ($1.13) per pound; second quality, 1.75 rubles (90 cents) per pound; third quality, 1.25 rubles (64 cents) per pound. The privately grown tea brought, for first quality, 1.60 rubles (82 cents) per pound; second quality, 1.25 rubles (64 cents) per pound; and third quality, 1.10 rubles (57 cents) per pound. The realization of such prices would appear to indicate that Caucasian tea is of good marketable quality, and it is claimed that there is nothing to prevent its culture assuming vast proportions. Hitherto, the experiments have been confined to the government of Kutais, but other districts are equally well adapted to tea culture.

Sugar Yield in Russia.—Consul-General W. R. Holloway reports from St. Petersburg, December 20, 1902:

The yield of beet roots for the fiscal year ended November 1, 1902, according to statements of the Ministry of Finance, is 537,617,730 poods (8,741,589 tons), or 7.3 per cent more than for the same period last year; but owing to a cold and rainy season, 21 per cent of the total amount remains unharvested. The beet roots are of a higher quality than those of last year in the southwestern and central region, and inferior in the Vistula region.

A circular published in the Messenger of the Government estimates the production of white sugar at Russian works for the six months ended October 25, 1902, at 73,727,706 poods (1,198,824 tons), which includes 7,041,528 poods (114,496 tons) surplus of the previous period. In accordance with the decree of July 3, 1902, 43,000,000 poods (699,187 tons) must be stored in reserve, thus allowing only 30,000,000 poods (499,637 tons) to be placed on the Russian market. It is further ordered that 54 per cent of the total production be deducted, allowing 11 per cent for the intangible reserve and 43 per cent for the marketable reserve. The sugar refiners are to be instructed accordingly.

Siberian Copper.—Consul-General Richard Guenther, of Frankfort, sends translations from the Finanz-Chronik, of recent date, as follows:

Russia consumes annually about 22,000 tons of copper, 14,000 tons being imported. Until very recently the districts of the Ural and the Caucasus furnished the bulk of the copper produced in Russia—90 per cent of the total. The ores are treated for obtaining the metal by electrolysis. For some time, however, it has been known in expert circles that central Siberia, especially the government district of Krasnojarsk, contains immense deposits of copper ores, which extend almost to the Altai Mountains and contain a relatively high percentage of metallic copper. It is estimated that 21½ tons of ore would produce 1 ton of copper at an expense of about $95 per ton. Since the Trans-Siberian Railroad, which traverses this district, has been completed and the cost of transportation to Moscow, the chief market for Russian copper, has been greatly reduced, the total cost per ton at Moscow would be about $127. During the last five years, the price for pure copper at Moscow varied between $430 and $524 per ton.

A Russian-English corporation has recently been formed and, it is reported, has received a concession from the Russian Government for the exploitation of an area of about 1,200 acres, about 110 miles from the River Yenisei and directly connected with the Trans-Siberian Railroad. Among other privileges, the corporation will be exempt from internal taxes for ten years.

The engineers of the corporation have already carefully examined the mines and have made the most favorable reports with reference to them, and also as to the timber in the locality.

Dalny, Russia's Eastern Port.—Consul-General W. R. Holloway reports from St. Petersburg, December 8, 1902:

One result of the journey of the Minister of Finance to the Far East has been to settle the question of the future of Port Arthur. It is now declared that this will henceforth be wholly a fortification; the station of the main railway line is to be removed to some distance from its present position near the military works, and no ship, except ships of war, will in future be admitted into the port. The commercial port is to be Dalny, to which the main line of the Manchurian or Chinese Eastern Railway will be diverted, the present main line running to Port Arthur serving merely as a branch for the use of the Government. The great majority of the Russian business firms first established in Port Arthur have already been removed, or are removing, to Dalny, the future center of Russo-Chinese trade.

Custom Formalities on the Russo-Chinese Frontier.—The following translation from the Messenger of the Government has been received from Consul-General Holloway, of St. Petersburg:

> Up to the present, the examination of baggage of travelers arriving in Russia by the East Chinese Railway was made at Manchuria, at the junction of the Chinese and the Transbaikal lines. A second revision took place at the Myssovaia Station, the terminus of the Baikal line, on the east coast of Lake Baikal. At this station, there are no halls for that purpose, and the custom-house officials were compelled to make their examinations in the baggage cars, requiring the presence of the owners. This proceeding was not only annoying to the passengers, but detained the trains. The custom officers and the railway officials have now agreed that the heavy luggage examined at Manchuria will enjoy free passage at Myssovaia. Hand parcels will have to be reexamined at Myssovaia, because the trains bring passengers from various points along the railroad.

Exhibit of Photography at St. Petersburg.—Under date of December 20, 1902, Consul-General Holloway, of St. Petersburg, reports that an international exhibition of photography will be held from April 30 to June 13, 1903, by the Photographic Society of St. Petersburg. It will be divided into six sections, viz:

> (1) Scientific photography, application of the same to natural sciences, astronomy, medicine, etc.; (2) artistic photography; (3) photomechanical printing, viz, heliotyping, phototyping, engraving, zinc engraving, photoceramics, three-colored printing, etc.; (4) literature relating to photography, viz, books, periodicals, handbooks, manuals, etc.; (5) application of photography to technical purposes, viz, to architecture, building, industry, as well as to educational and juridical purposes; and (6) photographic industry, viz, instruments, materials, implements, apparatus, etc.

Exhibits will be received from February 14 to March 14, 1903. Gold, silver, and bronze medals, diplomas, and certificates will be awarded by a special jury.

Odessa-Naples-New York Steamship Line.—Consul-General W. R. Holloway reports from St. Petersburg, December 31, 1902:

It is stated here that the managers of the volunteer fleet will endeavor to inaugurate its new steamship line between Odessa, Naples, and New York at the date of the Czar's visit to Italy, in April, 1903. In connection with this enterprise, it is proposed to establish Russian commercial warehouses and exposition rooms at Rome, Turin, Milan, and Venice. So far, this Italian trans-Atlantic project has not met with very cordial appreciation in the Southern Peninsula. Its promoters depend largely upon the emigrant traffic between Naples and the United States. The Volunteer Fleet Association is in a position to wage a vigorous war. All the money it has hitherto earned has gone chiefly toward the construction of new ships, and as the fleet is now sufficiently large for present purposes, the managers can afford to make initiatory sacrifices, which will give them an enormous advantage in the Atlantic trade.

Mining Concessions in Nicaragua.—Consul Chester Donaldson reports from Managua, January 6, 1903:

The National Congress of Nicaragua has this day ratified a mining concession granting to Mr. James Deitrick, of Pittsburg, Pa., the exclusive right for twenty-five years to prospect for, locate, or work gold, silver, iron, coal, copper, or any other mines of any valuable mineral or oil in the departments of Jinotega, New Segovia, and Cabo Gracias; also the free introduction at the custom-houses of food, clothing, tools, machinery, etc., for the use of the workmen or works. For this concession, Mr. Deitrick is to pay $100,000 gold—$5,000 cash and $95,000 within four months. Mr. Deitrick has also bought from Señor José Dolores Gámez the exclusive navigation and transportation rights on the Rio Coco, or Wanks, and has made a contract with the Government to construct a dock at Cabo Gracias a Dios, as guaranty for which he has deposited 10,000 pesos (about $4,000 gold) in the treasury of Nicaragua.

Cuban Customs Tariff.—Minister Squiers, of Habana, under date of December 29, 1902, sends translation of the law extending the period for entry at reduced rate of duty of sugar and brandy making machinery, agricultural machinery, and railroad material. The law * reads:

ARTICLE 1. Order No. 206, dated September 28, 1901, in the notes thereof to paragraphs 215, 216, and in the special disposition of paragraph 318 thereof, is declared to be in force until the date in which the new tariff of the Republic of Cuba takes effect, or for six months from the publication of this law in the Gazette, if before such time said tariff shall not have been promulgated.

ART. 2. Collectors of customs shall fix the conditions and guaranties referred to by the notes to paragraphs 215 and 216 and by the special disposition of paragraph 318 of the said general order of the Department of Cuba, No. 206, of 1901; also for a part of, or accessory to, a machine or apparatus, car, coach, or other railroad material complete, although imported in different ships, on different dates, and from different places, to be considered as belonging to any one of them.

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* See ADVANCE SHEETS No. 1540 (January 9, 1903).

ART. 3. Those who may have orders in at the time of publication of the tariff, for the articles comprised in the notes to paragraphs 215 and 216 and in paragraph 318 will enjoy a 50 per cent concession, provided such fact is proven before the importation of the articles referred to.

(Signed) T. ESTRADA PALMA.

December 26, 1902.

Completion of Cuba Central Railroad.--Consul R. E. Holaday, of Santiago de Cuba, under date of December 15, 1902, says:

I have to report the completion of the railroad which has been under construction by the Cuba Company, extending from San Luis, in the province of Santiago de Cuba, to Santa Clara, in the province of Santa Clara, thus establishing direct railroad communication—by connection with other lines—between this city and Habana. The railroad is now opened to the public. The first train carrying mail and passengers arrived in this city from Habana on Thursday, December 11. Everywhere along the line of the road it was greeted with enthusiasm by the people. Trains carrying mail and passengers leave this city for Habana every Monday, Wednesday, and Friday, and arrive in this city from Habana every Tuesday, Thursday, and Saturday. The passenger rate is, first class, $24; second class, $12.

Dominican Customs Revenue.—Minister Powell, of Santo Domingo, under date of December 10, 1902, informs the Department that the revenue received by the Dominican Government for the month of November from the several ports for exports and imports was as follows:

Santo Domingo	$40,000
Puerto Plata	20,000
Macoris	12,000
Sanchez	9,000
Monte Christi	4,000
Azua	2,000
Total	87,000

The above returns show a decrease of nearly $88,000, compared with the corresponding month of the previous year.

New Stage-Coach Line in Honduras.—Consul A. K. Moe writes from Tegucigalpa, January 6, 1903:

By a presidential decree promulgated in December, a diligence service was established on January 1, 1903, under the direction of the Postal Department. The coach will leave Tegucigalpa every Monday, Wednesday, and Friday, and Sabanagrande every Tuesday, Thursday, and Saturday. The fare from Tegucigalpa to Sabanagrande or vice versa is 5 pesos ($2 gold). Baggage and parcels are carried at the rate of 1.50 pesos (60 cents gold) for each 100 pounds. The diligence is to be run over the new road from Tegucigalpa to Sabanagrande, and upon the completion of the highway to San Lorenzo, on the Gulf of Fonseca, the line will be continued to the south coast.

New Mining Enterprise in Spain.—Consular Agent A. E. Carleton, of Almeria, reports:

The Linares Mining Syndicate, Limited, is the name of a new company recently founded in Linares, province of Jaen, for the purpose of exploiting mines of lead, copper, zinc, iron, and coal. The syndicate seeks to interest foreign capital in the rich mineral deposits of the peninsula, acting as an intermediary in the purchase or as agents of foreign companies. American and English capitalists are interested, although at present only in a small way. This syndicate has nearly formulated plans to construct a loading pier and a large storehouse for mineral in Almeria, and thus make this port the main shipping point for the ores of the provinces of Granada, Jaen, and Almeria. An office has been opened in New York, and the manager, Mr. S. Moos—an American—informs me that a representative of the syndicate is now in the United States for the purpose of making contracts, chiefly for iron ore.

Harbor and Railway in Cyprus.—Consul G. B. Ravndal writes from Beirut, December 8, 1902:

In connection with my reports on Cyprus (ADVANCE SHEETS Nos. 1099 and 1393),* I am now able to state that the contract for the construction of Famagusta Harbor has been let (to Price, Will & Co., London); also that the government of the island is in communication with the Egyptian authorities, with the intention of buying the material of the Port Said-Ismaila Railroad for the Larnaca, Nicosia, and Famagusta line, mentioned in my reports. Both enterprises will be started before Christmas. Owing to exceptionally bad crops during the last two years—resulting from drought, which have made money so scarce that usurers have charged 36 per cent interest on good loans—there has been lately a comparatively heavy emigration from Cyprus. Agricultural banks are greatly needed, besides further irrigation works.

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*CONSULAR REPORTS Nos. 253 and 269.

Proposed Hungarian Export Union.—Consul F. D. Chester writes from Budapest, November 28, 1902:

On Saturday last, at a meeting presided over by the president of the Budapest Chamber of Commerce, it was decided to constitute a "Hungarian export union" to aid exporters in finding markets for their goods. It is proposed that the union shall discover, make known, and establish relations with foreign markets, and shall send young men to those markets in order to give exporters intelligent agents and consignees.

The new union will work up public opinion in favor of home products. At present local authorities, like the city government of Budapest, often give contracts to foreigners in preference to native manufacturers.

German Tariff Bill.—The Department has received from Mr. H. P. Dodge, second secretary of embassy at Berlin, under date of December 15, 1902, the announcement of the passage of the German tariff bill* on December 13. The only important change finally accepted by the Government, Mr. Dodge notes, is the raising of the minimum duties on malting barley from 3 marks to 4 marks (71 cents to 95 cents). The lowering of the duties on agricultural implements will probably have little effect, as the schedules are to be used only as bases for concluding commercial treaties. Motions are to be made in the Reichstag regarding the limiting in future treaties of the most-favored-nation clause, and to introduce differential duties on raw and refined petroleum, in order to promote a home refining industry.

New German Cable Steamer.—Vice-Consul Henry Harder reports from Stettin:

The steamship *Stephan*, launched on December 29, 1902, at the Vulcan yards in Stettin for the North German Sea Cable Works at Nordenhamm, is the first vessel built at a German shipyard exclusively for the purpose of cable laying. In the early part of 1903, she will lay out the new trans-Atlantic cable now in construction at the cable works of Nordenhamm. The main dimensions of the ship are: Length over all, 412 feet 9 inches; beam, 47 feet 11 inches; depth, 32 feet 8 inches; draft, 24 feet 7 inches; tonnage, 4,600 register tons. The whole capacity of the steamer will be 6,050 tons, and she will be able to take 5,000 tons of deep sea and coast cable in four water-tight cylindrical tanks, of which the largest is 43 feet 4 inches and the smallest 36 feet in diameter. Two cable engines are fixed on the ship, one for taking in or for repairing a cable already in use and the other for laying the cable.

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*See ADVANCE SHEETS Nos. 1120 and 1133; CONSULAR REPORTS Nos. 253 and 254 (October and November, 1901).

Industrial Combinations in Sweden.—Consul R. S. S. Bergh sends from Gothenburg, December 15, 1902, the following extract from the Gothenburg Morgon-Posten:

> For the purpose of bringing about a combination between the largest match factories in Sweden, a syndicate consisting of five companies has recently purchased the majority of the shares in the Vulcan Company, the production of which has amounted to about one-fourth of the total production of matches in Sweden. According to reliable information, the shares which have thus changed hands represent not less than 7,500,000 kronor ($2,010,000).
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> The representatives of the Swedish joinery factories recently had a conference in Stockholm. This industry has been in an unsatisfactory situation, and an appeal for combination to all the Swedish manufacturers in this line has been issued.

Production of Zinc by Electricity in Sweden.—Consul R. S. S. Bergh sends from Gothenburg, January 12, 1903, the following translation of an article recently published by a local newspaper:

> Experts in metallurgy have for some time discussed the report that Dr. De Laval, after extensive experiments, has been able to produce zinc from zinc ore by electricity at the factory Önan, belonging to Trollhättans Elektriska Aktiebolag, Trollhättan. It is reported that the manufacture of carbide at Önan has been discontinued and the production of zinc by Dr. De Laval's method adopted. An expert states:
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> "Dr. De Laval has for several years worked on the problem of producing zinc by electricity from lead-sulphur-zinc ores. He was probably led to this by his experiments in trying to separate iron from ores by electricity. An examining board has reported favorably on the method, and the result has been the organization of a company to exploit the invention and the ore deposits at Saxberget, near Ludvika. The minimum capital—$26,800—has already been paid, and the company will start operations as soon as circumstances will allow."

Railway Contract in Portuguese West Africa.—Consul J. H. Thieriot, of Lisbon, under date of December 13, 1902, sends translation from the Official Gazette announcing the approval of a contract between the Portuguese Government and Robert Williams, an Englishman, for the construction of a line of railway 1,400 kilometers (870 miles) in length through the province of Angola, starting from the bay of Lobito, on the Atlantic coast. A guaranty of 560 contos of reis ($420,000) has been deposited. The Government concedes the right to the grantee for ten years to exploit all minerals within an area of 120 kilometers (74.5 miles) on either side of the line. The railway, it is noted, will work a financial transformation in the province of Angola and make Lobito a port of the first class and the key to central African trade. There is no absolute concession of land nor any immunity from taxes in the terms of the decree.

Mosquito Screens in Lourenço Marquez.—Consul W. S. Hollis, of Lourenço Marquez, under date of December 16, 1902, reports that there is an opening for the sale of mosquito netting in that district. The consul says:

This place has long been noted for its mosquitoes and for its malarial fever. Until a year ago, the only nettings used were the canopies for beds. Recently, some of the foreign residents have had mosquito screens put in their doors and windows, and this idea is now beginning to gain popularity. I would suggest that American manufacturers of mosquito nettings, as well as manufacturers of screen doors and window screens, send samples of their different makes, with complete price lists, to this consulate. They will be placed before interested parties.

Quinine Auction at Batavia.—Consul B. S. Rairden reports from Batavia, December 1, 1902, that the second public auction sale of quinine was held on November 27 at the office of the local agents of the Bandoeng quinine factory. About 3,855.6 kilograms (8,500 pounds) were disposed of, at an average price of 16.50 florins ($6.63) per kilogram (2.2 pounds), which equals the unit price of 0.06 florin (2.4 cents) for the bark at the Amsterdam market. This price is the same as that realized at the sale of October 30 last. During the month of November, it is reported that about 975,000 pounds of quinine were exported from Java.

German Chamber of Commerce for Tsintau.—Commercial Agent E. L. Harris reports from Eibenstock, January 3, 1903:

According to the Deutsche Kolonialzeitung, ten of the most prominent companies in the German colony of Kyao-chau, China, have organized and founded a chamber of commerce in the city of Tsintau. This makes the second enterprise of this nature undertaken by German merchants residing in foreign countries. The first one was established in Brussels a few years ago and is doing good work for German commercial interests in Belgium. It is extremely probable that a third chamber of commerce will be founded in Bukharest by German merchants residing in Roumania.

Naphtha Springs on Sakhalin Island.—Commercial Agent R. T. Greener writes from Vladivostock, November 3, 1902:

A German engineer has found new naphtha ground on the eastern part of Sakhalin Island, and also a large lake filled with dry naphtha. This, he says, would be excellent material for preparing asphalt. Work, it appears, was begun some four years ago; but it will take a year or two more to develop it, as proper machinery and testing instruments are to be employed for the first time. The prospects for naphtha products are good, and this engineer thinks they promise to be richer than those of Baku.

Railway Mileage in Russia.—Consul Samuel Smith reports from Moscow, December 8, 1902:

The total mileage of railways in Russia on September 1, 1902, was 37,319 miles, of which 6,387 miles were double track. There are 4,921 miles under construction by the Department of Ways and Means of Communication, and 1,582 miles by the Chinese Railroad Company. Besides this, 2,194 miles are planned.

Antisocialistic Society in Sweden.—Consul V. E. Nelson reports from Bergen, December 21, 1902:

According to Swedish newspapers, a society has been formed by the workingmen at Boras which has for its object to protect its members against interference on the part of the socialists, and to aid them when socialists have forced them to stop work. It is becoming more and more evident, it is stated, to employers as well as to workingmen that they should stand together and not work against each other in industrial matters.

German Exposition for Welfare of Labor.—Consul J. J. Langer reports from Solingen, December 18, 1902:

During the coming spring, the German Government will open a permanent exposition for the welfare of laborers, the purpose of which, in the first place, is to display inventions for the prevention of accidents, which will be explained by lectures, and also to exhibit contrivances for protection against so-called trade diseases.

Anthracite Coal in British Columbia.—Consul L. E. Dudley, of Vancouver, January 14, 1903, writes:

It is reported, upon reliable authority, that anthracite coal has been discovered at Cumberland, on Vancouver Island, upon the property of the Union Coal Mines Company, which is the largest shipper of coal from the western portion of this Province. It is said that this anthracite coal has 80 per cent fixed carbon.

In a later report, the consul notes that the coal field is estimated to cover 1,000 acres. The anthracite merges as it gains depth into a bituminous coal. Work on the seam is being pushed, and it is thought that coal will be shipped by next fall.

Chinese Enterprise at Vancouver.—Consul L. E. Dudley writes from Vancouver, January 14, 1903:

Chinese merchants are endeavoring to secure a location for the establishment of a sawmill in the vicinity of this city. It is said that if they succeed they will proceed with the erection of the mill immediately, and that it will be operated entirely by Chinese, except in the engineer department, where certified engineers must be employed.

Demand for American Machinery at Quito.—Under date of December 1, 1902, Minister Sampson, of Quito, writes that a company is being formed in that city to build a large cotton mill. The preference is for American machinery and looms, and the request is made that firms interested, particularly the Northup Loom Company, send as soon as possible their catalogues and price lists to Minister Sampson, care of the Department of State, Washington. European agents are already bidding for the contract, which will not be let until American catalogues and price lists have been received.

Leases of Rubber Land in Peru.—The Department has received from Minister Dudley, of Lima, under date of December 9, 1902, translation of a law just promulgated, authorizing leases of lands by the Government to the india-rubber companies for terms not to exceed forty years.

Mr. Dudley sends, December 24, 1902, translation of a resolution requiring a deposit in Peruvian internal-debt bonds, in earnest of good faith of petitioners for rubber lands.

Reduction of Taxes in Colombia.—Consul-General H. A. Gudger, of Panama, January 19, 1903, reports that a decree has been issued abolishing the following taxes: Tax on local steamship tickets issued on the Isthmus, which was $8 silver (about $3.20 gold); tax on passports, which was $4 silver (about $1.60 gold); the local tonnage tax on all merchandise landed for local use, which was $1.50 gold on each ton.

Consul Malmros, of Colon, under date of January 20, 1903, says that the tonnage dues on vessels* have also been abolished.

Import Duties in Colombia.—Consul Oscar Malmros writes from Colon, January 6, 1903, that after ninety days from January 5, 1903, the increase of duties previously reported† will be reduced by 10 per cent per month, until the taxes reach the original amounts established by decrees of the Department of Panama of 1894 and 1895.

Request for Trade Information.—The Bureau of Foreign Commerce has received from Fr. Buzzi d'J, of Trieste, Austria, a request for publication of the fact that he is desirous of obtaining the names of United States manufacturers of cotton-seed oil and of exporters of cotton waste, cotton strips, and engine-cleaning waste. Mr. Buzzi's request is hereby complied with for the information of the trade interests mentioned.

Hungarian Firm in the United States.—Consul F. D. Chester sends from Budapest extract from the official publication of the Royal Hungarian Commercial Museum, as follows:

> With the assistance of the Royal Minister of Commerce, a Hungarian firm will establish itself in the United States. The firm will represent only Hungarian houses, and will be under the supervision of the Hungarian attaché there.

Vote on New Swiss Tariff.—Vice-Consul L. J. Frankenthal, of Berne, January 21, 1903, reports that the requisite number of signatures of voters who demand a referendum of the new Swiss tariff law‡ has been greatly exceeded, in consequence of which the Bundesrat has fixed March 15, 1903, for the popular vote.

American Shoes in England.—Consul F. W. Mahin, of Nottingham, under date of December 19, 1902, writes the Department that during the past year, according to trustworthy estimates, 750,000 men, women, and children in the United Kingdom wore American-made boots and shoes.

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*See ADVANCE SHEETS No. 1499 (November 19, 1902).

†See ADVANCE SHEETS No. 1314 (April 12, 1902); CONSULAR REPORTS No. 261 (June, 1902).

‡See ADVANCE SHEETS No. 1309 (April 7, 1902), No. 1507 (November 29, 1902), and No. 1293 (March 19, 1902).

Combination of Swedish Lumber Companies.—Consul R. S. S. Bergh writes from Gothenburg, January 12, 1903, that, according to a local newspaper, negotiations are being carried on for a combination of lumber companies, comprising $938,000 in capital.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
F. D. Chester, Budapest	Dec. 12, 1902	Animal industry of Hungary.	Department of Agriculture.
Do	do	Emigrants' wages	Bureau of Immigration.
E. Schneegans, Saigon	Dec. 4, 1902	Rice	Department of Agriculture.
D. R. Birch, Malaga	Dec. 27, 1902	Foot-and-mouth disease	Do.
A. W. Swalm, Montevideo	Dec. 18, 1902	Crop conditions	Do.
W. R. Holloway, St. Petersburg.	Dec. 13, 1902	Wages and hours of labor	Department of Labor.
J. H. Grout, Malta	Jan. 9, 1903	Archæological discovery	Smithsonian Institution.
H. W. Furniss, Bahia	Dec. 26, 1902	Naturalization laws	Bureau of the American Republics.
H. W. Diederich, Bremen	Jan. 13, 1903	Emigration	Bureau of Immigration.
F. W. Mahin, Nottingham	Jan. 21, 1903	American industrial conditions.	Department of Labor.
Do	do	Resting period of plants	Department of Agriculture.
E. L. Harris, Eibenstock	Jan. 22, 1903	Military school	War Department.
A. K. Moe, Tegucigalpa	Jan. 20, 1903	Opportunity for geological research.	Geological Survey.

FOREIGN REPORTS AND PUBLICATIONS.

German Commerce with Africa.—The Board of Trade Journal, London, January 15, 1903, says:

The value of the total special trade of Germany with Africa in the year 1901 was $47,409,443, as compared with $49,156,517 in 1900; the imports into Germany from Africa for home consumption (exclusive of precious metals) being valued at $30,454,557 in 1901 as against $32,021,570 in 1900, and the exports from Germany to Africa of German produce and manufactures (exclusive of precious metals) amounting in value to $16,954,886 in 1901 as compared with $17,134,947 in 1900.

The following table shows the value of imports into Germany from Africa and exports from Germany to Africa for each of the five years 1897–1901:

Year.	Imports.	Exports.
1901	$30,454,557	$16,954,886
1900	32,021,570	17,134,947
1899	29,846,245	16,804,025
1898	24,473,629	14,682,231
1897	21,675,391	14,317,243

German East Africa.—The chief articles imported into Germany from German East Africa in 1901 were caoutchouc and gutta-percha, valued at $68,130; raw coffee, at $48,665. The chief articles exported from Germany to this colony were silver ($170,328) and ironware ($116,796).

German Southwest Africa.—The chief article imported into Germany from this colony is guano, which forms 63 per cent of the total imports. Other articles were caoutchouc and gutta-percha, copper wire, and raw ostrich feathers. The chief articles of export from Germany to German Southwest Africa were: Beer in bottles, $107,063; ironware, $126,539; locomotives and locomobiles, $72,998; clothing of cotton, linen, and wool, $68,131; and rough cabinet ware, $68,131.

German West Africa.—The trade of Germany with German West Africa is greater than that with any other of her African colonies. The chief articles imported into Germany from this colony are caoutchouc and gutta-percha, valued at $394,187 in 1901; and cocoanuts, valued at $364,854. The chief articles exported from Germany to German West Africa are: Hulled rice, $87,597; gold and silver bullion and specie, $87,597; cotton goods, $141,129; and gunpowder, $68,131. The total trade of this colony with Germany has increased from $1,932,000 in 1897 to $2,525,713 in 1901.

British South Africa.—The principal articles imported into Germany from British South Africa are sheep's wool, valued in 1901 at $4,525,845, and ostrich feathers, $486,650. The chief articles exported from Germany to British South Africa in 1901 were: Beer in bottles, $437,985; cotton goods, $564,514; loaf sugar, $364,988; and cement, $267,658.

British West Africa.—The principal articles imported into Germany from British West Africa in 1901 were: Cocoanuts, $5,839,800; palm oil, $856,504; and caoutchouc and gutta-percha, $437,985. The chief articles of export from Germany to British West Africa were: Perfumery, $384,453; spirits, $379,587; and ironware, $267,657.

British East Africa.—The total imports from British East Africa into Germany in 1901, consisting of cloves, caoutchouc, earthnuts, and ivory, amounted to $447,718. The exports from Germany, of which the chief items were loaf sugar, ironware, and soap, were valued at $364,987.

French Africa.—The trade of Germany with Algeria forms nearly one-half of the whole trade with the French possessions in Africa.

Portuguese Africa.—The trade of Germany with Portuguese West Africa forms about 75 per cent of the total trade with Portuguese Africa.

Egypt.—The principal articles exported from Egypt to Germany are cotton (which forms about 75 per cent of the total exports) and cigarettes. The following table shows the value of these articles for 1900 and 1901:

Article.	1900.	1901.
Cotton	$7,908,062	$6,156,123
Cigarettes	1,172,827	1,094,963

The imports into Egypt from Germany in 1901 were: Iron and ironware, $948,968; cotton and cotton goods, $642,378; and wool and woolen goods, $515,849. The Kongo Free State exported to Germany caoutchouc and gutta-percha to the value of $1,313,955, and received from Germany: Beer, $58,398; gunpowder, $24,333; and ironware, $29,199. The exports from Morocco to Germany were chiefly dried almonds, $267,658; olive oil, $136,262; and wax, $121,663. Morocco received from Germany, in 1901, woolen cloths, not printed, $121,663; loaf sugar, $43,798; and iron and ironware, $48,665.

Trade of the Gold Coast in 1901.—According to a British colonial report (No. 375), the total value of the imports into the Gold Coast amounted, in 1901, to £1,801,027 ($8,764,698) and that of the exports to £559,733 ($2,723,941), giving a general total of £2,360,760 ($11,488,639), as compared with £2,180,409 ($10,610,960) for 1900. The following table gives the value of trade of the colony for the last five years:

Year.	Imports.	Exports.	Total.
1897	$4,431,143	$4,178,450	$8,609,593
1898	5,360,684	4,832,425	10,193,109
1899	6,439,440	5,410,273	11,849,713
1900	6,300,937	4,310,023	10,610,960
1901	8,764,698	2,723,941	11,488,639

The report continues:

> The above statement shows that, with the exception of 1899, the general total for 1901 is the highest figure that has been reached, and also that it is due to the large import figure. The exports for the first three years show a marked increase and a decrease in 1901 of $1,586,082 over the figures of the preceding year. Among the articles of export rubber shows the greatest decrease, the figures for 1901 being £104,030 ($506,262), a decrease of £224,126 ($1,090,609) from the preceding year. Two causes may be said to contribute to this condition—the low prices on the European markets and the fact that a number of the trees and vines have been killed by

ignorant methods of extraction and the desire to obtain all the value out of the trees in the shortest time. Cocoa is the sole article of export which shows any increase for 1901, and that was considerable, being 994,777 pounds in weight and amounting to £15,537 ($75,611) in value. The following table gives a comparison of the value and origin of imports for 1900 and 1901:

Country of origin.	1900.		1901.	
United Kingdom	£920,279	$4,478,538	£1,324,809	$6,447,183
Lagos	58,994	287,094	67,541	328,688
Sierra Leone	19,047	92,692	16,588	80,724
African ports	15,398	74,934	28,194	137,206
United States	50,843	247,428	103,128	501,872
Belgium	364	1,771	....	....
France	16,638	80,969	19,742	96,074
Germany	172,861	841,228	192,271	935,687
Netherlands	37,880	182,343	43,946	213,863
Italy	3	14	1,896	9,227
Portuguese colony	1,023	4,978	2,910	14,164
Spanish colony	1,629	7,928	....	....
Total	1,294,963	6,300,937	1,801,027	8,764.698

Liquid Fuel in the East.—The following is taken from a late issue of the Moniteur Officiel du Commerce of Paris:

The product designated as mazout in the statistics of the Egyptian customs is liquid fuel used by vessels which have changed their furnaces and boilers for this purpose. During 1901, the reservoirs of Port Tewfick received 20,090 tons, valued at 660,972 francs ($127,560), a perceptible increase over the figures for the preceding years, showing that the efforts of the Shell Transport and Trading Company, the promoters of this system of heating, have not been in vain. The installation at Port Tewfick was begun in November, 1898, and completed in September, 1899. It consists of four reservoirs, one with a capacity of 300 tons and three of 4,000 tons each. They are located on the east quay of the north basin of Port Ibraham, are cylindrical in form, and constructed of steel plate; the one with capacity for 300 tons is 25 feet in diameter and 30 feet in depth; those of 4,000 tons are 77 feet in diameter and 38½ feet in depth. The installation comprises, besides, a filling warehouse, a workshop for the manufacture of cans, a warehouse, and two buildings containing each a boiler and a steam pump. All these buildings are of masonry and corrugated sheet iron, and they are surrounded by an inclosure also of sheet iron. The smallest reservoir is used for storing the refined petroleum, known as kerosene; the three large reservoirs are for mazout, or liquid fuel. Pipes, laid at 1 meter (1.09 yards) depth underground, convey the oil from the reservoirs to the storage chambers of the vessels, into which the liquid flows by its own pressure. Four other pipes are joined to these and permit the receiving of petroleum from the supply vessels or the furnishing to them when necessary. On account of the settling of the east quay, boats can not anchor nearer than 50 meters (54.5 yards); for this reason, the pier was established to facilitate communication, which is made by means of rubber pipes inclosed in iron wire. As a measure of public safety, fires are kept as far distant as possible from the filling storehouse, and a certain number of buckets filled with dry sand are kept ready for use. These precautions only concern the refined petroleum; the mazout in reality gives out gas only at 200° F., a temperature which it never reaches under the influence of natural causes. A lighted match would be extinguished in this liquid as quickly as in water. The administration of

Egyptian customs has established a special regulation for mazout, its measurement, the collecting of duties of entrepôt of 1 per cent, the tax of surveillance of 52 centimes (10 cents) per ton; finally, the application of the entrance duty of 8 per cent when the petroleum is destined for local consumption or for the interior of Egypt. A new company of French navigation, "l'Est Asiatique," uses this liquid fuel and quite recently several of the cargo boats have filled their storage chambers at this depot.

Commercial Movement of the Port of Suez.—According to the Moniteur Officiel du Commerce, Paris, January 15, 1903, the commercial movement of the Port of Suez in 1901 amounted to £1,209,038 Egyptian ($5,976,275), as compared with £964,185 ($4,765,966) in the preceding year. The imports were valued at $3,723,639. The chief articles of import were:

Textiles (including empty sacks)	$1,156,885
Chemical products	205,547
Natural indigo	1,125,683
Coffee	355,440
Tobacco	2,358

The export trade is unimportant with the exception of cane sugar ($461,581), gum arabic ($734,826), chemical products, including medicines and perfumery ($41,865), tissues of cotton ($27,268), silk and silk thread ($31,132), ostrich feathers ($81,919), and eggs ($26,058). The total value of exports was $2,252,636. Suez is probably destined in the near future to serve, as formerly, as a port of transshipment and as an emporium for merchandise coming from the Sudan, as soon as the new provinces have been improved by the creation of roads and projected railway lines, which will serve to drain the numerous products of these rich countries.

Florentine Industries.—A recent report in the Nachrichten für Handel und Industrie, Berlin, speaks of the notable development in the province of Florence of wool and cotton manufactures. It says:

> In the small town of Prato there are three woolen factories with hydraulic and steam motors, which employ 80 workmen; they manufacture the so-called art wools in which old woolen materials and rags are raveled out and newly prepared. Ten workshops, employing 800 workmen, are devoted to spinning mills, the largest of which has 400 workmen, 3 steam motors, and 2,000 spindles. For the manufacture of the spun yarn, there are 17 factories at present. They produce an ordinary quality of cloth for both men's and women's wear. In regard to the manufacture of the so-called Florentine mosaics, modern taste has almost entirely abandoned the old artistic products. Only a few small ornaments are now made. On the other hand, the exhibition of the so-called Byzantine mosaics, composed of colored pieces of glass in more or less artistic metal frames, has largely increased. The frames are made by workers in gold, while the mosaics are set by women and girls. The completed articles are for the most part exported to Germany, where there is a demand for them in the bazaars.

Italian Cotton Textiles in Roumania.—The Bulletin Commercial, of Brussels, has the following:

Italian cottons are greatly in demand in Roumania. The increasing favor with which they are regarded is due in part to their low price and to the facilities for easy payments which the Italian manufacturers accord to Roumanian houses. Another important factor in this increase is that they study how to suit the taste of the people. It has been scarcely four years since Italian manufacturers began to compete with German and Austro-Hungarian firms for this market; but at first they committed the grave mistake of making war not only on German products of the same kind, but against each other, by offering their goods at ridiculous prices and even at a loss. However, in 1902 the manufacturers of Milan and Venice united and decided to establish a central office at Milan for exportation to Roumania which, by fixing a uniform price, would prevent manufacturers from competing with each other. A branch establishment, if necessary, will be established at Bukharest. This would seem to be worth while, as the importations into Roumania amount to about 140,000,000 lire ($27,020,000) annually. In 1901, this trade was distributed as follows:

Country.	Value.	
	Lire.	
Germany	43,077,800	$8,314,015
England	40,361,972	7,789,861
Austria-Hungary	27,873,105	5,379,509
Italy	14,348,724	2,769,304
France	8,392,858	1,619,822
Switzerland	3,839,974	741,115
Belgium	1,319,446	254,653
Total	139,273,879	26,868,279

Commerce of France in 1902.—The Revue du Commerce Extérieur, Paris, January 24, 1903, gives the following statement comparing the commerce of France in 1902 with that of 1901, taken from the official statistics of the customs administration:

IMPORTS.

Description.	1902.	1901.	Increase.	Decrease.
Food products	$152,192,080	$151,299,262	$892,818	
Raw materials for manufacture	551,323,221	542,887,770	8,435,451	
Manufactured articles	148,719,624	149,067,410		$347.786
Total	852,234,925	843,254,442	8,980,483	

EXPORTS.

Description.	1902.	1901.	Increase.	Decrease.
Food products	$134,344,019	$143,829,004		$9,484,985
Raw materials for manufacture	225,048,615	196,537,111	$28,511,504	
Manufactured articles	409,862,134	388,043,057	20,919,077	
Postal packages	48,470,406	45,188,441	3,281,965	
Total	817,725,174	774,497,613	43,227,561	

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Vol. LXXI. No. 271.

CAMBRIDGE, MASS.

CONSULAR REPORTS.

APRIL, 1903.

COMMERCE, MANUFACTURES, ETC.

[FOR TABLE OF CONTENTS, SEE FIRST PAGE.]

DEPARTMENT OF STATE * UNITED STATES OF AMERICA *

WASHINGTON:
GOVERNMENT PRINTING OFFICE
1903.

CAMBRIDGE, MASS.

CONTENTS.

Page.
LIST OF PUBLICATIONS........ IX
I.—SISAL, THE YUCATAN FIBER........ *Thompson* 473
II.—COPPER, SILVER, AND GOLD IN LATIN AMERICA........ 493
(Argentine Republic, 493—Brazil, 494—Chile, 501—Colombia, 510—Ecuador, 512—The Guianas, 513—Honduras, 513—Nicaragua, 513—Paraguay, 516—Salvador, 516—Uruguay, 520.)
III.—URUGUAYAN COMMERCE WITH CUBA........ *Swalm* 520
IV.—SUGAR CROP IN SANTA CLARA, CUBA........ *Baehr* 521
V.—BRAZILIAN REVENUE BILL FOR 1903........ *Furniss* 522
VI.—AGRICULTURE IN HONDURAS........ *Moe* 523
VII.—CEARA RUBBER IN NICARAGUA........ *Gottschalk* 525
VIII.—THE FORESTS OF CANADA........ *Culver* 526
IX.—SALMON PRODUCTION IN BRITISH COLUMBIA........ *Smith* 531
X.—OPENING FOR WELL-BORING MACHINES IN CHINA........ *Martin* 532
XI.—GOLD MINING IN THE PRIMORSKI REGION, SIBERIA... } *Holloway* 533
XII.—MINING IN RUSSIAN CHINA........ } *Holloway* 534
XIII.—MINING INDUSTRY IN TURKESTAN........ } *Holloway* 535
XIV.—THE COMMERCIAL SCHOOL AT TIFLIS........ *Harris* 536
XV.—AUSTRO-HUNGARIAN COMMERCE IN 1902........ *Hunt* 540
XVI.—GERMAN IMPORT OF TROPICAL FRUIT........ *Diederich* 541
XVII.—GERMAN SUGAR BILL........ *Tower* 542
XVIII.—GERMAN EXPORTS TO THE UNITED STATES........ *Mason* 543
XIX.—SWISS FACTORIES IN GERMANY........ *Bardel* 544
XX.—NEW COTTON EXCHANGE AT BREMEN........ *Diederich* 544
XXI.—THE NORTH SEA FISHERIES........ *Smythe* 546
XXII.—AN IMMEDIATE OPPORTUNITY FOR AMERICAN COD FISHERMEN, *Ridgely*........ 562
XXIII.—ELECTRIC-POWER DISTRIBUTION IN GREAT BRITAIN........ *Mahin* 564
XXIV.—APPARATUS FOR ARRESTING FIRE IN SHIPS' HOLDS........ *Goding* 570
XXV.—SELF-IGNITION OF COTTON........ *Diederich* 571
XXVI.—MARSEILLES OIL AND SEED TRADE OF 1902........ *Skinner* 572
XXVII.—PRODUCTION OF COLORED COCOONS........ *Atwell* 574
XXVIII.—SUGAR PRODUCTION IN SPAIN........ *Hallatt* 575
XXIX.—AMERICAN FLOUR AND LARD IN MALTA........ } *Grout* 576
XXX.—AMERICAN AUTOMOBILES IN MALTA........ } *Grout* 577

Page.
XXXI.—German Exports to Morocco.................................*Monaghan* 578
XXXII.—Newspapers in German Colonies..............................*Harris* 579
XXXIII.—Cotton in German East Africa...............................*Hughes* 580
XXXIV.—French Cultivation of Cotton in Africa..............*Thackara* 581
XXXV.—Cotton Growing in British West Africa.............. *Evans* 585
Atwell 585
XXXVI.—Trade at Beira..*Glenny* 586
XXXVII.—The Nile Reservoir...*Long* 588
XXXVIII.—Pepper Cultivation in India...*Fee* 590
XXXIX.—Mother-of-Pearl-Shell Industry.......................... *Davidson* 593
XL.—Proposed Currency Changes in the Straits Settlements.. *Davidson* 598
XLI.—Proposed Currency Changes in Indo-China...............*Covert* 598
XLII.—Currency Changes in Siam.................................... *Selden* 599
XLIII.—Tender for Rails in Siam...................................... *Selden* 600
XLIV.—Transcontinental Railway in Australia.................*Murphy* 600
XLV.—Wool Production in Australasia..................................*Bray* 601
XLVI.—Harbor Works at Adelaide, Australia......................*Murphy* 602
XLVII.—Coal Production in New South Wales in 1902.........*Goding* 602
XLVIII.—Notes (Martinique-Guadeloupe Wireless Telegraphy—Brazilian Cacao Crop in 1902—Commercial Legislation in Colombia—Mahogany Exports from Nicaragua—Imports at Puerto Cortes, Honduras—Steel Plant at Monterey, Mexico—Machinery for the Yukon—Niagara Falls Power for Toronto—Canadian Request for Molybdenum—Steamship Line between Rotterdam and Montreal—New Russian Tariff—German Customs Declaration as to Country of Origin—Circulars for Germany—Dresden Exposition of Municipal Government—Exposition of Apiculture in Vienna—Marble in Hungary—Opening for Potato-Starch Machinery in Russia—Vulcanized Timber in England—New Industry for the Blind—Demand for American Peanuts in France—Firemen's Competition at Havre—Agricultural Congress in Rome—International Dairy Congress at Brussels—German Professorship of Railroads—Reconstructed Shipyards in Stettin—German Plan for Guaranteeing Fresh Eggs—German Colonial Finances—Gold Mining in German East Africa—Gutta-Percha in German New Guinea—Coral in Japan—Cotton Yield in Central Asia during 1902—Opening for Dredge in Syria—Quinine Auction in Batavia—Export Duties of Colombia—Paper Suitable for Bills in Colombia—Sugar Crop of Guadeloupe—Automobiles in Guadeloupe—Bank Exchange Rate in Guadeloupe—American Shoes in Jamaica—Increase in Venezuelan Tariff—Mexican Duty

Page.

on Wheat—American Steel Factory at Flushing—Safety Pins in Hungary—Opening for Dredge in Russia—Brazilian Revenue Bill for 1903: Correction—Consular Reports Transmitted to Other Departments).. 604

XLIX.—FOREIGN REPORTS AND PUBLICATIONS (Commerce of Venezuela—Platinum in Siberia—Foreign Trade of Bulgaria in 1902—Commercial Situation of Portugal—New Railways in India).. 620

REPORTS BY COUNTRIES.

AFRICA: Page.
French cultivation of cotton in 581
AFRICA, BRITISH WEST:
Cotton growing in 585
AFRICA, GERMAN EAST:
Cotton in 580
Gold mining in 614
AFRICA, PORTUGUESE EAST:
Trade at Beira 586
ARGENTINE REPUBLIC:
Copper, silver, and gold in 493
ASIA, CENTRAL:
Cotton yield in, during 1902 615
ASIA MINOR:
Opening for dredge in Syria 615
AUSTRALASIA:
Wool production in 601
AUSTRALIA:
Apparatus for arresting fire in ships' holds 570
Coal production in New South Wales in 1902 602
Harbor works at Adelaide 602
Mother-of-pearl-shell industry in 593
Transcontinental railway in 600
AUSTRIA-HUNGARY:
Commerce of, in 1902 540
Exposition of apiculture in Vienna 609
Marble in Hungary 609
Safety pins in Hungary 618
BELGIUM:
International dairy congress at Brussels 612
BRAZIL:
Cacao crop in 1902 604
Copper, silver, and gold in 494
Ceara rubber in Nicaragua 525
Revenue bill for 1903 522
Revenue bill for 1903: Correction 619
CANADA:
Machinery for the Yukon 606
Molybdenum and actinolite in Ontario 607
Niagara Falls power for Toronto 606
Salmon production in British Columbia 531
Steamship line between Montreal and Rotterdam 607
The forests of 526
CHILE:
Copper, silver, and gold in 501
CHINA:
Opening for well-boring machines in 532

Page.

CHINA, INDO:

Proposed currency changes in ... 598

CHINA, RUSSIAN:

Mining in ... 534

COLOMBIA:

Commercial legislation in ... 605
Copper, silver, and gold in ... 510
Export duties of ... 616
Paper suitable for bills in ... 616

CUBA:

Sugar crop in Santa Clara ... 521

ECUADOR:

Copper, silver, and gold in ... 512

EGYPT:

The Nile reservoir ... 588

ENGLAND:

Vulcanized timber in ... 610

FRANCE:

An immediate opportunity for American cod fishermen in ... 562
Demand for American peanuts in ... 611
Firemen's competition at Havre ... 611
Marseilles oil and seed trade of 1902 ... 572
Production of colored cocoons in ... 574

GERMANY:

Circulars for ... 608
Colonial finances ... 613
Customs declaration as to country of origin ... 608
Dresden exposition of municipal government ... 609
Exports to the United States ... 543
Import of tropical fruit ... 541
New cotton exchange at Bremen ... 544
Newspapers in colonies of ... 579
Plan for guaranteeing fresh eggs in ... 613
Professorship of railroads in ... 612
Reconstructed shipyards in Stettin ... 613
Self-ignition of cotton ... 571
Sugar bill in ... 542
Swiss factories in ... 544

GREAT BRITAIN:

Electric-power distribution in ... 564
The North Sea fisheries ... 546
Vulcanized timber in England ... 610

GUADELOUPE:

Automobiles in ... 617
Bank exchange rate in ... 617
Sugar crop of ... 616
Wireless telegraphy with Martinique ... 604

GUIANA, BRITISH:

Copper, silver, and gold in ... 513

GUIANA, DUTCH:

Copper, silver, and gold in ... 513

GUIANA, FRENCH:

Copper, silver, and gold in ... 513

GUINEA, GERMAN NEW: Page.
Gutta-percha in 614
HONDURAS:
Agriculture in 523
Copper, silver, and gold in 513
Imports at Puerto Cortes 605
HUNGARY:
Marble in 609
Safety pins in 618
INDIA:
Pepper cultivation in 590
ITALY:
Agricultural congress in Rome 612
JAPAN:
Coral in 614
JAMAICA:
American shoes in 617
JAVA:
Quinine auction in Batavia 615
MALTA:
American automobiles in 577
American flour and lard in 576
MARTINIQUE:
Wireless telegraphy with Guadeloupe 604
MEXICO:
Duty on wheat in 518
Sisal, the Yucatan fiber 473
Steel plant at Monterey 606
MOROCCO:
German exports to 578
NETHERLANDS:
American steel factory at Flushing 618
Steamship line between Rotterdam and Montreal 607
NICARAGUA:
Ceara rubber in Nicaragua 525
Copper, silver, and gold in 515
Mahogany exports from 605
PARAGUAY:
Copper, silver, and gold in 516
PORTUGAL:
New industry for the blind in 611
RUSSIA:
New tariff of 607
Opening for dredge in 619
Opening for potato-starch machinery in 610
The commercial school at Tiflis 536
SALVADOR:
Copper, silver, and gold in 516
SIAM:
Currency changes in 599
Tender for rails in 600
SIBERIA:
Gold mining in the Primorski region 533

SPAIN: Page.
Sugar production in 575
STRAITS SETTLEMENTS:
Proposed currency changes in 598
TURKESTAN:
Mining industry in 535
URUGUAY:
Commerce of, with Cuba 520
Copper, silver, and gold in 520
VENEZEULA:
Increase in tariff of 618

Full directions for binding the Consular Reports are given in No. 131, page 663.

ITALY—Continued. Page.

International exhibition at Milan in 1905 603
Olive oil in 590
Sicilian lemon crop 590

JAPAN:

Osaka Exhibition 580

MALTA:

New breakwater at 552
Passenger elevator at 552
Wheat and flour trade at 351

MEXICO:

Changes in stamp taxes in 521
Failure of corn crop in Yucatan 595
Government purchase of railroad in 594
Mexican commercial museums abroad 594
Mexican tariff on ferromanganese 594
Tax on dynamite and powder in 593

ROUMANIA:

Commercial travelers in 603

RUSSIA:

American typewriting and salt-mining machines wanted in 589
Coal mining in Poland 589
Straw presses in 607
Wheat prospects in 590

SALVADOR:

Consular invoices in 596

SOUTH AMERICA:

German sailcloth in 596
International competition in markets of 509

SPAIN:

Openings for trade in Asturias 494
Request for brick-making machinery 591

SUDAN:

Agricultural machinery in the 606
Iron in the 570

SWITZERLAND:

Progress of the Simplon Tunnel 550

TURKEY IN ASIA:

Bagdad Railway and German commerce in Asia Minor 565

UNITED KINGDOM:

British house-cleaning device 555
Catalogues in foreign languages 606
Combine of shipbuilders on the Tyne 592
Effect of high-priced cotton in England 605
Technical high school in England 601

VENEZUELA:

Closing custom-houses in 597
Coinage for 597

Full directions for binding the Consular Reports are given in No. 131, page 663.

ANNOUNCEMENT.

On July 1, 1903, the Bureau of Foreign Commerce of the Department of State, which has had charge of the publication and distribution of the CONSULAR REPORTS, was transferred to the Department of Commerce and Labor, in pursuance of provisions in the act of Congress approved February 14, 1903, creating that Department, and consolidated with the Bureau of Statistics, transferred from the Treasury to the new Department. Reports from consular officers on commercial and industrial subjects will hereafter be transmitted through the Department of State to the Department of Commerce and Labor, and the latter will publish and distribute them.

Requests for consular reports should hereafter be made to the Department of Commerce and Labor.

The publications formerly issued by the Bureau of Foreign Commerce will be issued in similar form by the Department of Commerce and Labor. They are as follows:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—REVIEW OF WORLD'S COMMERCE, being a summary of the annual reports contained in Commercial Relations.

III.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

IV.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

V.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

VI.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880–81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885–86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Stave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1901).—Part I. Gas and Oil Engines in Foreign Countries. Part II. Silver and Plated Ware in Foreign Countries.

Vol. 24 (1902).—Creameries in Foreign Countries.

Vol. 25 (1902).—Stored Goods as Collateral for Loans.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Port Regulations, Refrigerators and Food Preservation; Sericulture, etc.; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to $20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to January 1, 1903, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1898, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1875–1877, 1879–1882, 1884–1887, 1895, 1897, and 1899 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—*Countries with fixed currencies.*

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S. gold.	Coins.
Argentine Republic	Gold and silver	Peso	$0.96,5	Gold—argentine ($4.82,4) and ½ argentine; silver—peso and divisions.
Austria-Hungary*	Gold	Crown	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium	Gold and silver	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
British North America (except Newfoundland).	do	Dollar	1.00	
British Honduras	do	do	1.00	
Chile	do	Peso	.36,5	Gold—escudo ($1.25), doubloon ($3.65), and condor ($7.30); silver—peso and divisions.
Costa Rica	do	Colon	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centisimos.
Cuba	Gold and silver	Peso	.92,6	Gold—doubloon ($5.01,7); silver—peso (60 cents).
Denmark	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Ecuador †	do	Sucre	.48,7	Gold—10 sucres ($4.8665); silver—sucre and divisions.
Egypt	do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland	do	Mark	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark	.23,8	Gold—5, 10, and 20 marks.
Great Britain	do	Pound sterling	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver	Drachma	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	do	Gourde	.96,5	Silver—gourde.
India ‡	Gold	Rupee	.32,4	Gold—sovereign ($4.8665); silver—rupee and divisions.
Italy	Gold and silver	Lira	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §	Gold	Yen	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia	do	Dollar	1.00	
Netherlands	Gold and silver	Florin	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Newfoundland	Gold	Dollar	1.01,4	Gold—$2 ($2.02,7).
Peru ‖	do	Sol	.48,7	Gold—libra ($4.8665); silver—sol and divisions.
Portugal	do	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ¶	do	Ruble	.51,5	Gold—imperial ($7.718) and ½ imperial ($3.80); silver—¼, ½, and 1 ruble.
Spain	Gold and silver	Peseta	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay	do	Peso	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela	Gold and silver	Bolivar	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

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* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See CONSULAR REPORTS No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see CONSULAR REPORTS No. 238, p. 359.

§ Gold standard adopted October 1, 1897. (See CONSULAR REPORTS No. 201, p. 259.)

‖ Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896-97, p. 254.

B.—*Countries with fluctuating currencies, 1874–1898.*

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver	Florin	$0.47,6	$0.45,3	$0.40,1	$0.34,5	$0.33,6	$0.42
Bolivia	do	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America	do	Peso	.96,5	.91,8		.69,9	.68	.85
China	do	Haikwan tael	1.61					
Colombia	do	Peso	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador	do	do	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt †	Gold	Pound (100 piasters).		4.97,4	4.90	4.94,3		
India	Silver	Rupee	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan	Gold	Yen	.99,7	.99,7		.99,7	.99,7	.99,7
	Silver				.87,6	.75,3	.73,4	.91,7
Mexico	do	Dollar	1.04,75	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡	Gold and Silver.	Florin	.40,5	.38,5				
Peru	Silver	Sol	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia	do	Ruble	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1896.	1898.
Austria-Hungary*.	Silver	Florin	$0.38,1	$0.34,1				
Bolivia	do	Boliviano	.77,1	.69,1	$0.61,3	$0.51,6	$0.49,1	$0.42,4
Central America	do	Peso	.77,1	.69,1	.61,3	.51,6	.49,1	.41,4
Colombia	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Ecuador	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
India	do	Rupee	.36,6	.32,8	.29,2	.24,5	.23,3	.20,1
Japan§	do	Yen	.83,1	.74,5	.66,1	.55,6	.52,9	
Mexico	do	Dollar	.83,7	.75	.66,6	.56	.53,3	.46
Peru	do	Sol	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Russia§	do	Ruble	.61,7	.55,3	.49,1	.41,3	.39,3	
Tripoli	do	Mahbub of 20 piasters.	.69,5	.62,3	.55,3	.46,5	.44,3	

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* The silver standard prevailed in Austria-Hungary up to 1892. The law of August 2 of that year (see CONSULAR REPORTS No. 147, p. 623) established the gold standard.

† The Egyptian pound became fixed in value at $4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

§ See footnote, table of fixed currencies.

C.—*Quarterly valuations of fluctuating currencies.*

Countries.	Monetary unit.	1900.				1901.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.	$0.42,7	$0.43,6	$0.43,8	$0.45,1	$0.46,8	$0.45,1	$0.43,6	$0.42,8
Central America.	Silver peso	.42,7	.43,6	.43,8	.45,1	.46,5	.45,1	.43,6	.42,8
China	Amoy tael	.69,1	.70,5	.70,9	.72,9	.75,7	.72,9	.70,5	.69,1
	Canton tael	.68,9	.70,3	.70,7	.72,7	.75,5	.72,7	.70,3	.68,9
	Chefoo tael	.66,1	.67,4	.67,8	.69,7	.72,4	.69,7	.67,4	.66,1
	Chinkiang tael	.67,5	.68,8	.69,3	.71,2	.74	.71,2	.68,8	.67,5
	Fuchau tael	.64	.65,2	.65,6	.67,4	.70,1	.67,5	.65,2	.64
	Haikwan tael	.70,3	.71,7	.72,1	.74,2	.77,1	.74,2	.71,7	.70,4
	Hankau tael	.64,7	.65,9	.66,3	.68,2	.70,9	.68,2	.65,9	.64,7
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.66,5	.67,7	.68,2	.70,1	.72,8	.70,1	.67,8	.66,5
	Niuchwang tael.	.64,8	.66,1	.66,5	.68,4	.71	.68,4	.66,1	.64,8
	Shanghai tael	.63,1	.64,4	.64,8	.66,6	.69,2	.66,6	.64,4	.63,2
	Swatow tael	.63,9	.65,1	.65,5	.67,4	.70	.67,4	.65,1	.63,9
	Takao tael	.69,6	.70,9	.71,4	.73,4	.76,2	.73,4	.70,9	.69,6
	Tientsin tael	.67	.68,3	.68,7	.70,7	.73,4	.70,7	.68,3	.67
Colombia	Silver peso	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1	.43,6	.42,8
Ecuador †	do								
India	Silver rupee‡	.20,3	.20,7	.20,8					
Mexico	Silver dollar	.46,4	.47,3	.47,6	.49	.50,9	.49	.49	.46,4
Persia	Silver kran	.07,9	.08	.08,1	.08,3	.08,6	.08,3	.08,3	.07,9
Peru †	Silver sol	.42,7	.43,6	.43,8	.48,7				

Countries.	Monetary unit.	1902.				1903.
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.
Bolivia	Silver boliviano.	$0.41,3	$0.40,3	$0.38,2	$0.38,4	$0.36,1
Central America	Silver peso	.41,3	.40,3	.38,2	.38,4	.36,1
China	Amoy tael	.66,9	.65,1	.61,8	.62	.58,4
	Canton tael	.66,7	.64,9	.61,7	.61,9	.58,2
	Chefoo tael	.63,9	.62,3	.59,1	.59,3	.55.8
	Chinkiang tael	.65,3	.63,6	.60,4	.60,6	.57
	Fuchau tael	.61,8	.60,2	.57,2	.57,4	.54
	Haikwan tael	.68	.66,3	.62,9	.63,1	.59,4
	Hankau tael	.62,6	.60,9	.57,9	.58	.54,6
	Hongkong tael	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.64,3	.62,6	.59,5	.59,6	.56,1
	Niuchwang tael.	.62,7	.61,1	.58	.58,2	.53,3
	Shanghai tael	.61,1	.59,5	.56,5	.56,7	.53,9
	Swatow tael	.61,8	.60,2	.57,1	.57,3	.58,8
	Takao tael	.67,3	.65,5	.62,2	.62,4	.56,6
	Tientsin tael	.64,8	.63,1	.59,9	.60,1	.60,1
Colombia	Silver peso	.41,3	.40,3	.38,2	.38,4	.36,1
Mexico	Silver dollar	.44,9	.43,7	.41,5	.41,7	.39,2
Persia	Silver kran	.07,6	.07,4	.07	.07,1	.06,6

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* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† See footnote, table of fixed currencies.

‡ The sovereign is the standard coin of India, but the rupee is the money of account. See also table of fixed currencies.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal	4.422 gallons.
Ardeb	Egypt	7.6907 bushels.
Are	Metric	0.02471 acre.
Arobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1.12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	11.4 gallons.
Do	Spain (raisins)	100 pounds.
Berkovets	Russia	361.12 pounds.
Bongkal	India	832 grains.
Bouw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	529 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1.333⅓ (1⅓) pounds.
Do*	Japan	1.31 pounds.
Do	Java, Siam, and Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110.24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.46 pounds.
Chetvert	Russia	5.7748 bushels.
Chih	China	14 inches.

*More frequently called "kin." Among merchants in the treaty ports it equals 1.33⅓ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan	Sarawak	3,098 pounds.
Do	Siam (Koyan)	2,667 pounds.
Cuadra	Argentine Republic	4.2 acres.
Do	Paraguay	78.9 yards.
Do	Paraguay (square)	8.077 square feet.
Do	Uruguay	Nearly 2 acres.
Cubic meter	Metric	35.3 cubic feet.
Cwt. (hundredweight)	British	112 pounds.
Dessiatine	Russia	2.6997 acres.
Do	Spain	1.599 bushels.
Drachme	Greece	Half ounce.
Egyptian weights and measures	(*See* CONSULAR REPORTS No. 144.)	
Fanega (dry)	Central America	1.5745 bushels.
Do	Chile	2.575 bushels.
Do	Cuba	1.599 bushels.
Do	Mexico	1.54728 bushels.
Do	Morocco	Strike fanega, 70 pounds; full fanega, 118 pounds.
Do	Uruguay (double)	7.776 bushels.
Do	Uruguay (single)	3.888 bushels.
Do	Venezuela	1.599 bushels.
Fanega (liquid)	Spain	16 gallons.
Feddan	Egypt	1.03 acres.
Frail (raisins)	Spain	50 pounds.
Frasco	Argentine Republic	2.5096 quarts.
Do	Mexico	2.5 quarts.
Frasila	Zanzibar	35 pounds.
Fuder	Luxemburg	264.17 gallons.
Funt	Russia	0 9028 pound.
Garnice	Russian Poland	0.88 gallon.
Gram	Metric	15.432 grains.
Hectare	do	2.471 acres.
Hectoliter:		
Dry	do	2.838 bushels.
Liquid	do	26.417 gallons.
Joch	Austria-Hungary	1.422 acres.
Ken	Japan	6 feet.
Kilogram (kilo)	Metric	2.2046 pounds.
Kilometer	do	0.621376 mile.
Klafter	Russia	216 cubic feet.
Koku	Japan	4.9629 bushels.
Korree	Russia	3.5 bushels.
Kwan	Japan	8.28 pounds.
Last	Belgium and Holland	85.134 bushels.
Do	England (dry malt)	82.52 bushels.
Do	Germany	2 metric tons (4,480 pounds).
Do	Prussia	112.29 bushels.
Do	Russian Poland	11⅓ bushels.
Do	Spain (salt)	4,760 pounds.
League (land)	Paraguay	4,633 acres.
Li	China	2,115 feet.
Libra (pound)	Argentine Republic	1.0127 pounds.
Do	Central America	1.043 pounds.
Do	Chile	1.014 pounds.
Do	Cuba	1.0161 pounds.
Do	Mexico	1.01465 pounds.
Do	Peru	1.0143 pounds.
Do	Portugal	1.011 pounds.
Do	Spain	1.0144 pounds.
Do	Uruguay	1.0143 pounds.
Do	Venezuela	1.0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter	Metric	1.0567 quarts.
Livre (pound)	Greece	1.1 pounds.
Do	Guiana	1.0791 pounds.
Load	England (timber)	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 superficial feet.
Manzana	Costa Rica	1¾ acres.
Do	Nicaragua and Salvador	1.727 acres.
Marc	Bolivia	0.507 pound.
Maund	India	82 2/7 pounds.
Meter	Metric	39.37 inches.
Mil	Denmark	4.68 miles.
Do	Denmark (geographical)	4.61 miles.
Milla	Nicaragua and Honduras	1.1493 miles.
Morgen	Prussia	0.63 acre.
Oke	Egypt	2.7225 pounds.
Do	Greece	2.84 pounds.
Do	Hungary	3.0817 pounds.
Do	Turkey	2.82838 pounds.
Do	Hungary and Wallachia	2.5 pints.
Pic	Egypt	21¼ inches.
Picul	Borneo and Celebes	135.64 pounds.
Do	China, Japan, and Sumatra	133⅓ pounds.
Do	Java	135.1 pounds.
Do	Philippine Islands.	137.9 pounds.
Pie	Argentine Republic	0.9478 foot.
Do	Spain	0.91407 foot.
Pik	Turkey	27.9 inches.
Pood	Russia	36.112 pounds.
Pund (pound)	Denmark and Sweden	1.102 pounds.
Quarter	Great Britain	8.252 bushels.
Do	London (coal)	36 bushels.
Quintal	Argentine Republic	101.42 pounds.
Do	Brazil	130.06 pounds.
Do	Castile,* Chile, Mexico, and Peru	101.41 pounds.
Do	Greece	123.2 pounds.
Do	Newfoundland (fish)	112 pounds.
Do	Paraguay	100 pounds.
Do	Syria	125 pounds.
Do	Metric	220.46 pounds.
Rottle	Palestine	6 pounds.
Do	Syria	5¾ pounds.
Sagene	Russia	7 feet.
Salm	Malta	490 pounds.
Se	Japan	0.02451 acres.
Seer	India	1 pound 13 ounces.
Shaku	Japan	11.9305 inches.
Sho	do	1.6 quarts.
Standard (St. Petersburg)	Lumber measure	165 cubic feet.
Stone	British	14 pounds.
Suerte	Uruguay	2,700 cuadras (see cuadra).
Sun	Japan	1.193 inches.
Tael	Cochin China	590.75 grains (troy).
Tan	Japan	0.25 acre.
To	do	2 pecks.
Ton	Space measure	40 cubic feet.
Tonde (cereals)	Denmark	3.94783 bushels.
Tondeland	do	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo	Japan	6 feet square.
Tsun	China	1.41 inches.
Tunna	Sweden	4.5 bushels.
Tunnland	Sweden	1.22 acres.
Vara	Argentine Republic	34.1208 inches.
Do	Central America	32.87 inches.
Do	Chile and Peru	33.367 inches.
Do	Cuba	33.384 inches.
Do	Curaçao	33.375 inches.
Do	Mexico	33 inches.
Do	Paraguay	34 inches.
Do	Spain	0.914117 yard.
Do	Venezuela	33.384 inches.
Vedro	Russia	2.707 gallons.
Vergees	Isle of Jersey	71.1 square rods.
Verst	Russia	0.663 mile.
Vlocka	Russian Poland	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6418 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.
Decameter (10 meters) equals 393.7 inches.
Hectometer (100 meters) equals 328 feet 1 inch.
Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).
Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.
Are (100 square meters) equals 119.6 square yards.
Hectare (10,000 square meters) equals 2.471 acres.

CONSULAR REPORTS.

COMMERCE, MANUFACTURES, ETC.

Vol. LXXII. AUGUST, 1903. No. 275.

TRADE IN THE CANARY ISLANDS.

Trade in the Canary Islands has been about the same as in the preceding year; if anything, a fraction less. This can be attributed to general business depression; also in part to the fluctuation of exchange.

IMPORTS.

For the last two years the customs of the Canaries have been farmed out to a syndicate consisting of the principal merchants in these islands, the terms of the contract being that the Spanish Government shall receive an annual payment of 1,002,000 pesetas—equal, at present exchange, to $150,300.

This company does not furnish any particulars as to exports or imports, and I am therefore compelled to have the manifests on file in the custom-house copied. As these do not give the origin of the articles imported, the latter are recorded as having originated in the country from which they were shipped.

There is direct communication between the Canary Islands and Liverpool, London, Antwerp, Marseilles, Genoa, Barcelona, and Cadiz. All goods arriving from these ports are entered at the custom-house as being imported from England, Germany, Italy, Belgium, France, or Spain, as the case may be, no matter what the actual country of origin.

The following articles are really of American origin, though not so recorded: Lard, ham, tobacco (leaf and manufactured), flour, and the gardens and parks. Its place is taken by another member of the family, whose importance is more far reaching. The *Agave sisalensis* furnishes a fiber that not only helps to knit firmer the commerce of the whole world, but binds the sheaves of wheat so that the price of bread in every land is made cheaper for its use.

To the casual observer a field of the pulque plant and one of the fiber plant are very similar in appearance. Both have the same peculiar green, the same many-thorned leaves; investigation, however, soon shows the difference.

THE AGAVE SISALENSIS.

There are three known varieties of the species growing wild in the forests of Yucatan—the chelem, the cahum, and the citamci—and I think that I have found a fourth wild variety during my explorations in the interior. There are also two varieties of the cultivated plant—the yaxci, or green fiber, and the sacci, or white fiber. The last-named plant is the most cultivated and the one producing the sisal hemp of commerce.

The primeval inhabitants probably did not at first attempt to extract the fiber from the thick pulp, but took the leaf and wilted it in the fire, then split it, and used the splits as thongs. The leaves so treated make thongs of great strength, and as they dry they bind with wonderful force. In the primitive forms of habitation in the region, the mud and wattle "nás" are bound together by these shreds of fiber-wilted leaves. They are shapely, water-tight, and durable, and the native builder's only tool is a heavy, sharp-edged knife. Not a spike or nail or metal of any kind enters into the building.

Later the people found that if they cleaned off the thick pulp and the green corrosive juice they could get a firmer hold and so bind tighter. Then they learned to twist the shreds, and this idea led to the making of ropes and cords.

The chelem, cahum, and citamci.

The wild agave known as the chelem is, I believe, the progenitor of the cultivated sacci. The fiber is of good quality, but scant in quantity. The fiber of the cahum is long and silky, but even scantier in quantity than that of the chelem, and it is said to be brittle.

I send with this report wisps of fiber taken from each of the above-described wild varieties, as well as of those cultivated. Each wisp of fiber is the product of a single leaf. I also send leaves of each half cleaned—that is, one-half of the leaf has the pulp removed and the fiber exposed, while the other half is left just as it comes from the field, with only the spines and thorns removed.*

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* Filed in the Bureau of Foreign Commerce, where they may be examined by parties interested.

The Yaxci.

In ancient times the agave, or henequen, was one of the most important plants of the peninsula.

At a time when most of Europe was in the pall of utter darkness, the priests and rulers of Yucatan lived in stone temples and palaces. Up the steep sides of the myriad pyramids were carried great blocks and sculptured columns.

To move these mighty masses of limestone no powerful engines were at hand; but the Batabs of Yucatan, like the rulers of ancient Egypt, had little use for mechanical devices. Human muscle and ropes of agave were all-sufficient. If ten ropes and a hundred slaves were not enough, a hundred ropes and a thousand slaves were not lacking. The ancient artists made use of the fiber in their work. They were not content to make the figure; they made the skeleton, and upon the bones and in the flesh—like the cords and muscles of the body—they placed cords and plaited bands of fiber. Close examination indicates that the fiber used was that of the yaxci plant. Over the imbedded muscles and flesh they placed a thin, hard wash of stucco, to represent the skin and surface pigments. The writer has examined many dozen specimens of the broken figures of stucco wherein are plainly shown the casts and the knots and braid—even the very character of the fiber.

Ropes and cables for boats were also made of agave fiber, cleaned by the ancient methods and twisted by hand into the cordage needed. When there happened to be a scarcity of hemp for the cordage of the Royal Spanish navy, search was made for a new material to eke out the supply from Manila, and the fiber used by the Campeche people came up for discussion. A royal commission was ordered to investigate, and its report, made in 1783, gave unstinted praise to the new fiber. This fixes approximately the time of the first exportation of sisal hemp. For half a century afterwards its existence seems to have been forgotten by the outside world. This fact was probably due to several causes, the principal of which was that the buccaneers made the path of Spanish commerce often seem the shortest road to ruin and death. Meanwhile, the people of Yucatan grew poorer and poorer. Men looked around to see what could be turned into the money needed for the necessities of life.

The sacci.

Attention was turned toward the fiber concealed in the leaf of the henequen, and in 1839 a kind of association was formed to make the experiment of producing the coarser fiber "sacci" on a commercial basis. It was known that the spiny-edged agave called sacci produced a fiber coarser than that of the yaxci, but much more abundant, and consequently more profitable to cultivate, as the fiber then sold by weight and not by quality. The fiber was cleaned by native instruments, and, packed in loose bales of about 200 pounds each, was sent to New York. It found a market, but the price was such that there was but scant gain for the seller. The methods of cleaning the fiber were so slow that even with the small wages of the day the cost per pound to the planter was discouraging. The State government, recognizing the great need of a suitable machine to clean the fiber, offered a gratuity of $10,000 Mexican to the person inventing an apparatus capable of producing a stated output per hour. This finally resulted in the "raspador," the device of a Franciscan friar, which was used for many years. To-day, half a dozen machines are in the market, some of them marvels of design and potency.

At this point a brief résumé of the fiber-cleaning machines in use may be interesting. Taking them in order of precedence by priority of invention, the list must unquestionably be headed by the pacché and the tonkas.

THE PACCHÉ.

This is simply a triangular, sharp-edged piece of wood, with rounded ends as handles. The cholul is the material from which it is generally made, as it has a special quality of preserving its edge under constant use. A flat face of a "chacah" wood log is made with a hole and a peg in the upper portion. The leaf is taken, one end firmly fixed into the flat surface by jamming it into the hole and pushing the plug in after it; then the scraper is pushed away from the worker, held somewhat diagonally from the flat surface, and the pulp is gradually scraped away, leaving the tress of fiber hanging from the uncleaned half of the leaf. The leaf is then reversed, the clean fiber is fixed into the hole, and the uncleaned portion presented ready for the action of the cleaner.

THE TONKAS.

The second prehistoric implement, called the "tonkas," is a flattened piece of hard wood about 18 inches long by 5 inches wide. At its upper end it is about an inch thick, and it dwindles until at the end it becomes a thin, sharp edge, curving inward, so as to grip and scrape the pulp from the fiber. The bedboard of the tonkas has a curve to correspond with the curve in the edge of the implement. The leaf is placed between the bedpiece and the tonkas, and, while the tonkas is held firmly in one hand, the other draws the leaf sharply toward the body, this movement being repeated until one-half of the leaf is clean. The same operation takes place on the second half of the leaf, until the clean tress of fiber hangs soft and pliant in the grasp of the operator. The pacché is the implement most in use to-day among the natives of the interior of Yucatan. Women use it to clean fiber, but the tonkas is used only by the strongest. An able-bodied person can produce with the use of this implement from 6 to 9 pounds of fiber daily.

It is unquestionably true that the fiber produced by these ancient implements possesses qualities not to be obtained by the machine-cleaned product. In the hammock-making districts of Yucatan the yaxci is cleaned by these processes, and the makers of the finest hammocks (those worth their weight in silver) will not use a fiber produced by any other method.

THE RASPADOR.

The next step in the evolution of the fiber-cleaning machine is the Solis machine, or raspador, which, in principle, is a wheel upon which are placed the edges of many pacché. The angle of application is exactly the same.

The raspador marked a new era for the commerce of Yucatan. With the aid of this machine, two men could clean in one day more than forty could with the tonkas and pacché. Its use became extended, and henequen farms began to multiply and become prosperous.

The merits of the various machines I shall not discuss. The Stephens machines are at work; the Prieto is believed by many to be the most efficient all-round machine; the Villamor follows it a close second, while the Torroella, the Lopez, and the Lanaux each has its partisans and seems to do good work. These machines are the only ones in evidence to-day in Yucatan.

Inasmuch as the inventors of the machines above mentioned have made improvements in their apparatus, I have prepared the following table from data given me by the inventors or their authorized agents:

Hemp-cleaning machines in actual use upon the plantations of Yucatan.

Machine.	Leaves cleaned in 10 hours.	Men needed.	Actual horse-power.	Cost of machine.	
	Number.	*Number.*		*Mexican.**	*U. S.*
Lanaux reformed	150,000	4	25	$7,000	$3,003
Prieto reformed	150,000	4	16	8,600	3,689
Torroella reformed	150,000	4	16	7,000	3,003
Villamor reformed	100,000	7	16	5,000	2,145
Stephens	150,000	3	70	No more being made.	
Solis	9,000	3	9	2,000	858

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* The average value of the Mexican peso in 1902, according to the United States Mint, was 42.9 cents.

Perhaps the most important implement of all is the corba, or machete with a hooked end. It weighs about 1½ pounds, and its size and shape can be seen by the annexed cut. With the corba, the native dexterously cuts the thick leaf, leaving the stub as close as is compatible with the safety of the plant, and trims the side and end thorns. Yucatan ingenuity has attached to the corba a device like an apple and potato parer. This cuts off the side spines with only a very small portion of fiber.

CULTIVATION.

A thin, rocky, limestone soil is generally supposed to be the best for the growth of the sacci plant. Experience indicates that the fiber grown upon this class of soil has a percentage of tensile strength greater than that produced on the richer lands, though the last is more flexible and is longer. The percentage of safety allowed by the cordage makers is so high that I doubt if the diminished tensile strength of the rich-land hemp would seriously affect the quality of the output. Contrary to the general idea, a poor sandy soil is not congenial to the growth of a large, full-sized fiber plant. Few if any good-sized, well-formed plants grow very near the coast line. The best Yucatan fiber plant seems to be produced in a zone or belt following the coast, about 12 miles away from it and 70 miles wide.

The plant can be propagated in various ways—by seeds, by cuttings, and by scions, or suckers. The first-mentioned method is now never undertaken. Very few of the abundant seeds are fertile, and the time lost in raising the seedlings is great. The second method—by cuttings—is frequently undertaken; the top of an old, nearly worn-out plant is taken just before the long pole that should bear the flowers shoots up. It is cut off and trimmed of all save the newest leaves and then planted in the ground as though it were a scion. These plants are said to produce earlier than others. The general method, however, of producing a field of the sisal plant is as follows: A field is cut and the refuse burned; then a month or so before the rainy season the "hijos," or scions of sisal, that have sprouted under the shelter of the parent plant are rooted out of the ground, when they get to be 18 or 20 inches high, and thrown in a heap. There they lie for two or three months exposed to the sun and the weather. Just before the rainy season, when they seem to be dried up and decayed, they are carried to the cleared fields and planted in rows. Formerly, they so planted the young plants that they were separated by spaces of barely 2 yards, but of late years it has been found best to space them so that they will be in lines, each plant separated from the one preceding it by a space of 1½ yards and the lines 4 yards apart (about 1,100 plants to the acre). Thus, long and wide lanes are formed between the rows that facilitate cutting and carriage of the leaves, and also lessen the wounding of the leaves by the spines and thorns of their neighbors.

Previous to 1889 but little attempt was made to grade the hemp. Yaxci, sacci, short staple, long staple—all went as "sisal." Now, a fine, white fiber, well cleaned and baled, can command a notably better price than mixed fiber, ill-cleaned and badly baled.

The hope of the future is in the careful selection of hemp plants. Many plantations, more by good fortune than otherwise, are stocked with fiber-producing plants of a high order; others are handicapped by plants producing a meager fiber. The quality of the soil in both cases seems to be the same; the difference is in the class of plants. This phase is a comparatively new one on the plantations of Yucatan fiber and has only recently been taken into serious consideration.

The scion when planted ("anchored" would perhaps be the better word, as it is more often held by heavy stones than by the earth around it) needs no special care or irrigation. Once or twice a season the fields are roughly weeded. The plant thrives, and generally in about five years the earlier leaves commence to extend themselves laterally at right angles to the trunk of the plant. This is nature's signal that the fiber has reached its highest point of tensile strength and that the leaves are ready to be cut. The native cutters then throng the field, and with their corbas deftly cut the leaves close to the trunk, trim off each line of side thorns at a single stroke, snip off the horny end, and bind up the leaves in bundles. Tram cars take these bundles and carry them to the cleaning machine. While experience and dexterity are required, the work is not hard or the hours long to the cutter of henequen leaves.

THE ENEMIES OF THE PLANT.

Fire is its greatest enemy. Hot seasons do not affect it. In fact, the heat of the sun, especially when accompanied by dampness, seems to act as a tonic. It is then, if ever, that the plant recovers from its injuries. The greatest heat experienced in Yucatan for the last ten years was in July, 1900, when the thermometer reached 119° F. in the half shade of a veranda; 147° F. has been experienced in the sun on the principal street of Merida. Long droughts may delay its development, and by wilting the mature leaves cause them to double and injure the fiber, but it can not stop the ultimate growth of the healthy plant, once it is well rooted. Rainy seasons do not seriously affect the plants, except those in stagnant water.

This weakens the plant, but this condition is not common. Cold seasons of the kind that Yucatan experiences do not seriously affect the plant. The coldest known period was in February, 1899, when the thermometer registered 47° F.

But fire conquers it. Let a spark from a locomotive, the lighted end of a cigarette, or the embers of a fire made to heat the bread of the native workers start the flames in an ill-cleaned field, and nothing but a miracle can save the crop from total loss. It is said that some planters in the past have taken advantage of the susceptibility of the plant to artificial heat, and when young plants were desired for export, they were doctored before delivery by having their roots heated over heated embers or dipped into boiling water. The effects of this treatment are not perceptible for a time, and possibly this fact may make clear to some enthusiastic foreign planter why his scions, purchased with so much care and expense, never grew and prospered. Naturally, the Mexicans do not desire to have the plant that is such a valuable product of their country made common.

Next to fire, a large black beetle is the greatest enemy of the cultivated sisal. This large, long-nosed insect, known to the natives as the "max," may also attack the wild varieties, but I have not yet found evidence thereof. This beetle, I am told, is similar to the one that burrows into the trunks of the palm trees in Guatemala and British Honduras. At my request, Dr. George F. Gaumer, an American physician residing in Yucatan, has kindly consented to give in a few brief words the life history of this insect. Dr. Gaumer, whose studies and writings upon the fauna and flora of Yucatan have made his name familiar to naturalists everywhere, writes:

> The female insect lays its eggs on the trunk of the henequen plant a few inches above the ground. When hatched the larva burrows into and through the outer bark to the harder fiber of the interior, when it generally takes an upward direction and burrows from 6 to 12 inches during its larval existence. When full grown it works its way to the bark, where it changes to a pupa and so remains for some months, when it hatches into the adult beetle and emerges from the plant, which it leaves injured and weakened, but rarely kills. Three or more larvæ in the same plant will surely destroy it, but that number is of very rare occurrence.

The life of the plant can be greatly prolonged. I have seen fields old at 10 years and others vigorous and hearty at 19 years. The plants should be originally healthy scions, the leaves must be cut at just the right time, and the long pole must be nipped off before it has become more than a mere protuberance. Once the pole has grown, the plant ages rapidly.

PRODUCTION.

The output of the Yucatan fiber for the ten years ended December 31, 1901, was:

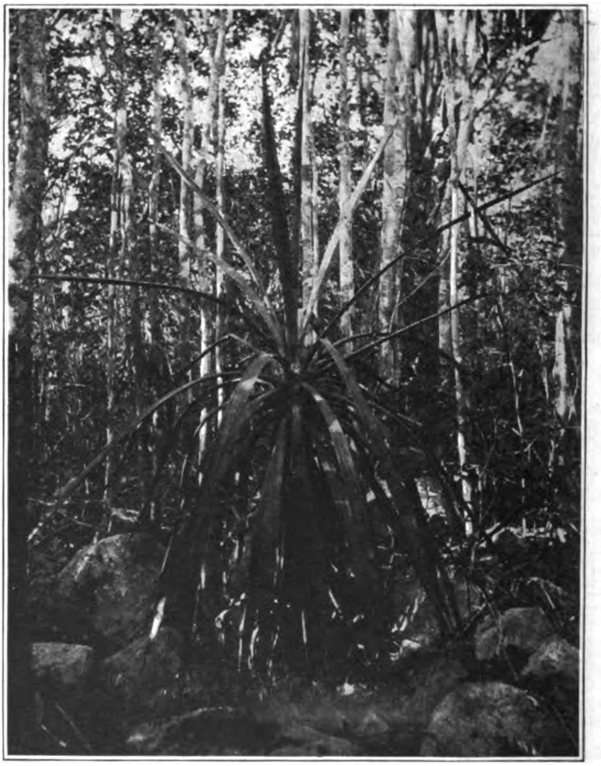
Year.	Bales.*	Year.	Bales.*
	Number.		*Number.*
1892	353,525	1898	418,972
1893	355,123	1899	445,978
1894	373,883	1900	499,634
1895	381,504	1901	517,519
1896	397,163	Total	4,163,276
1897	419,975		

*** Each bale weighs approximately 400 pounds. A bale of hemp at to-day's prices is worth $84 Mexican. The Mexican dollar is worth to-day 40.5 cents gold.**

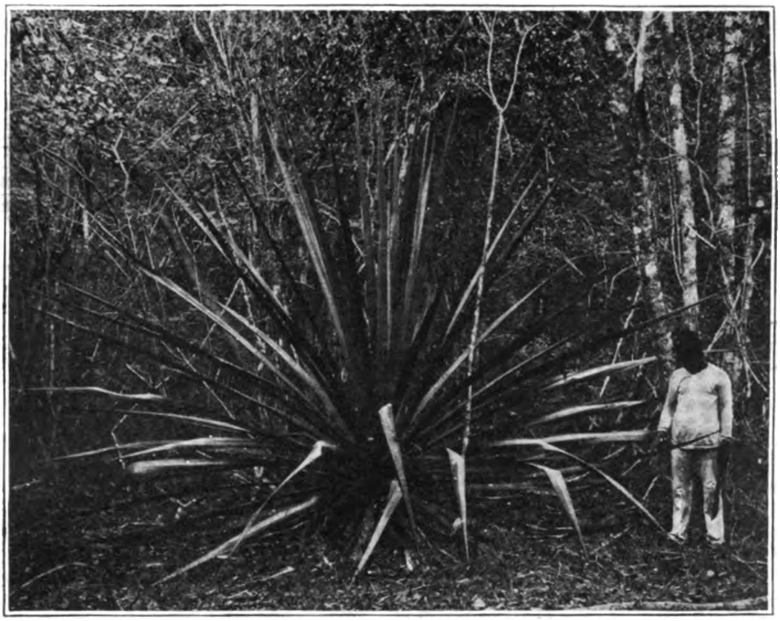
The output for the fiscal year ended June 30, 1902, was:

Month.	Bales.	Weight.	Value.	
1901.	*Number.*	*Tons.*	*Mexican.*	*U. S.*
July	64,460	10,319.7	$1,960,737	$841,156
August	48,726	7,988.6	1,917,277	822,512
September	44,634	7,271.9	2,327,017	998,290
October	32,455	5,295.7	1,725,912	720,416
November	40,328	6,342.3	2,377,077	1,019,766
December	34,747	5,515.1	2,126,960	912,466
1902.				
January	45,998	7,355.1	2,726,792	1,169,794
February	38,052	5,889.2	2,334,179	1,001,363
March	60,915	9,712.7	3,496,591	1,500,038
April	61,887	9,769.8	4,469,689	1,917,497
May	50,547	7,956.7	3,433,308	1,472,909
June	41,559	6,588.4	2,662,344	1,142,246
Total	564,308	90,005.3	31,557,888	13,538,343

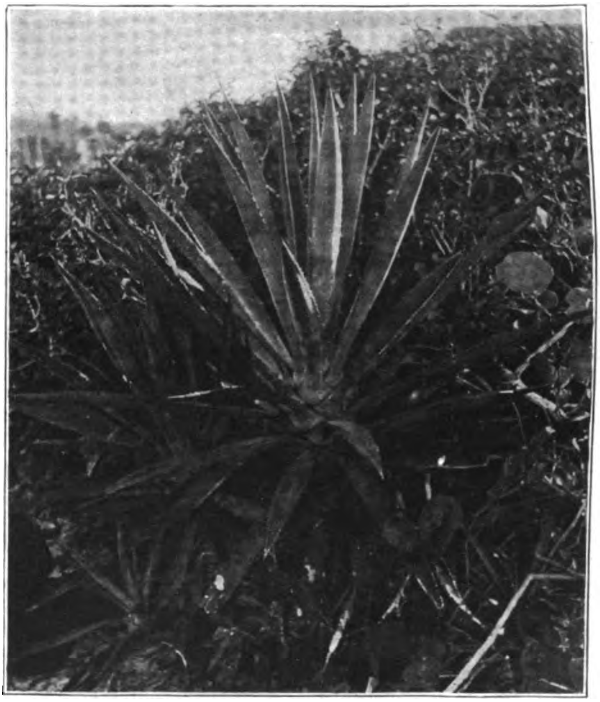
There will be a falling off in the supply for the season of 1903. The causes of this diminishing output, despite the high prices that prevail, will be the decreasing acreage of new fields. Laborers are scarce, and the great majority of planters dislike to stop cleaning fiber long enough to plant new fields or replant old ones.



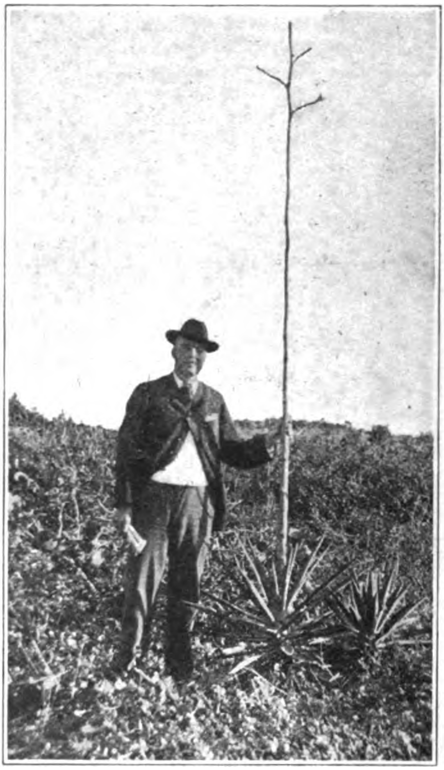
Chelem, or Wild Henequen Plant, Found in the Deep Forest and Lighter Jungle.



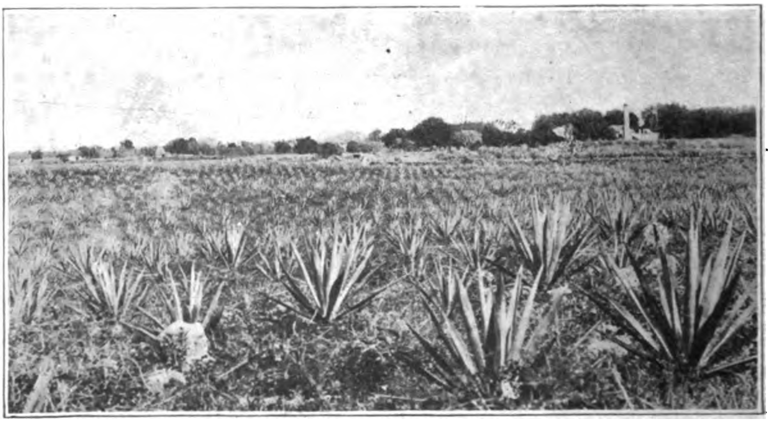
Chom, or Cahum, a Wild Variety of Agave Found in the Deep Forests of Yucatan.



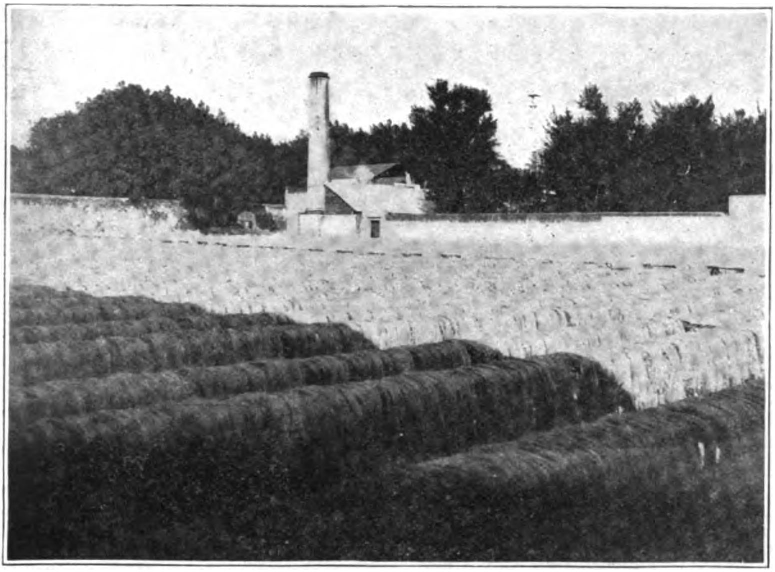
Citamci, a Wild Variety of the Agave Found on the Sand Dunes near the Coast.



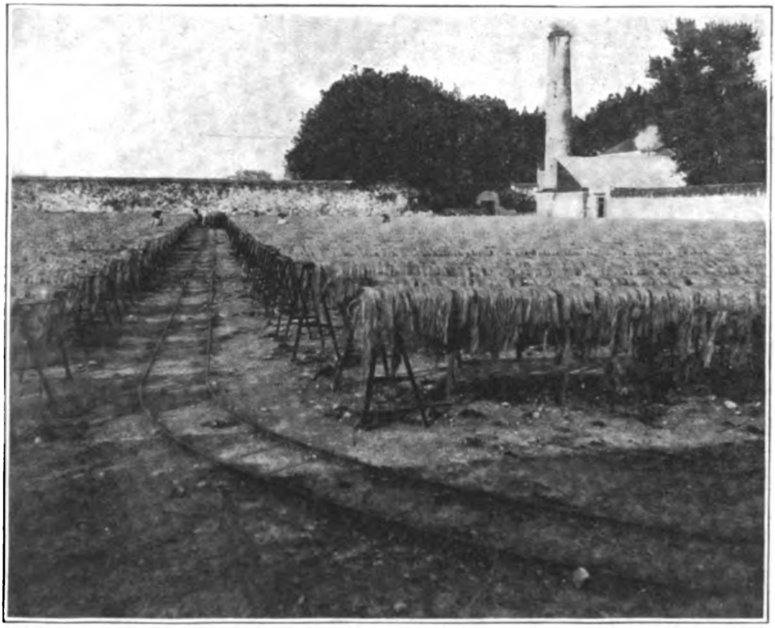
Mature Citamci Plant.



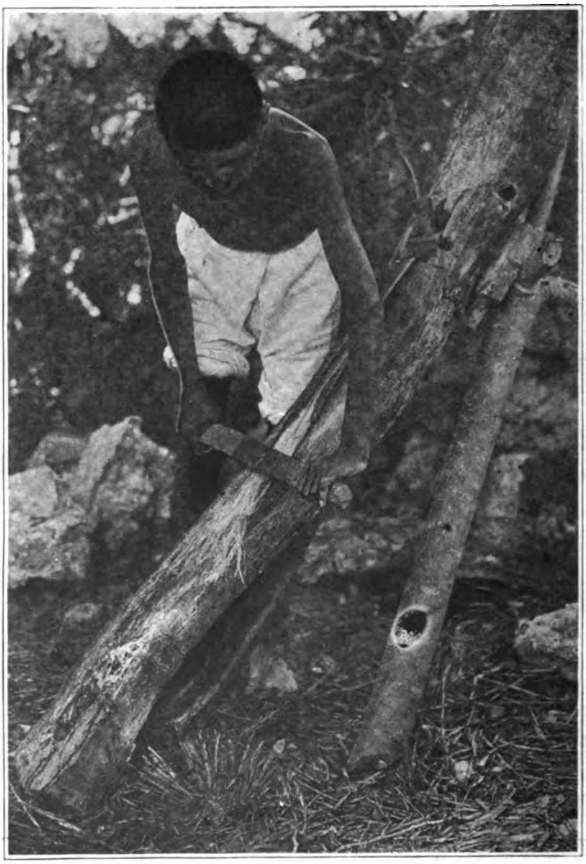
Young Field of Sisal Plants (2 Years Old).



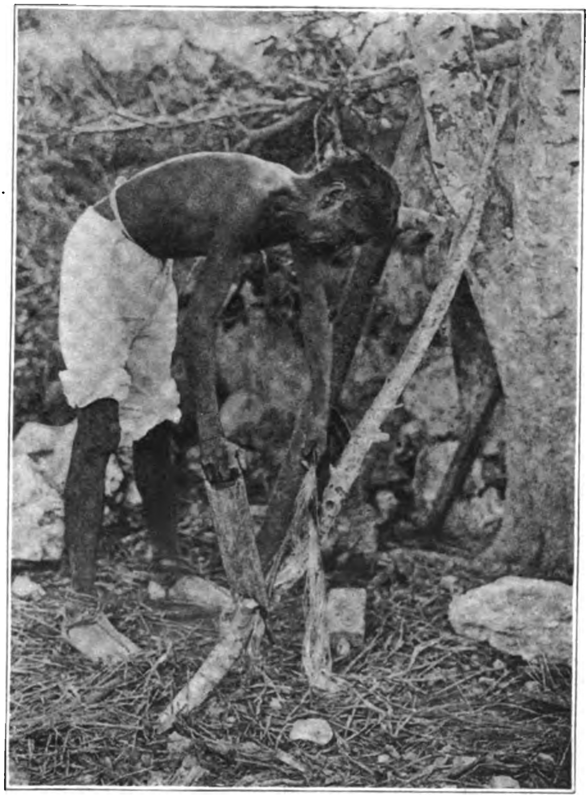
Drying Sisal Fiber at One of the Principal Plantations.



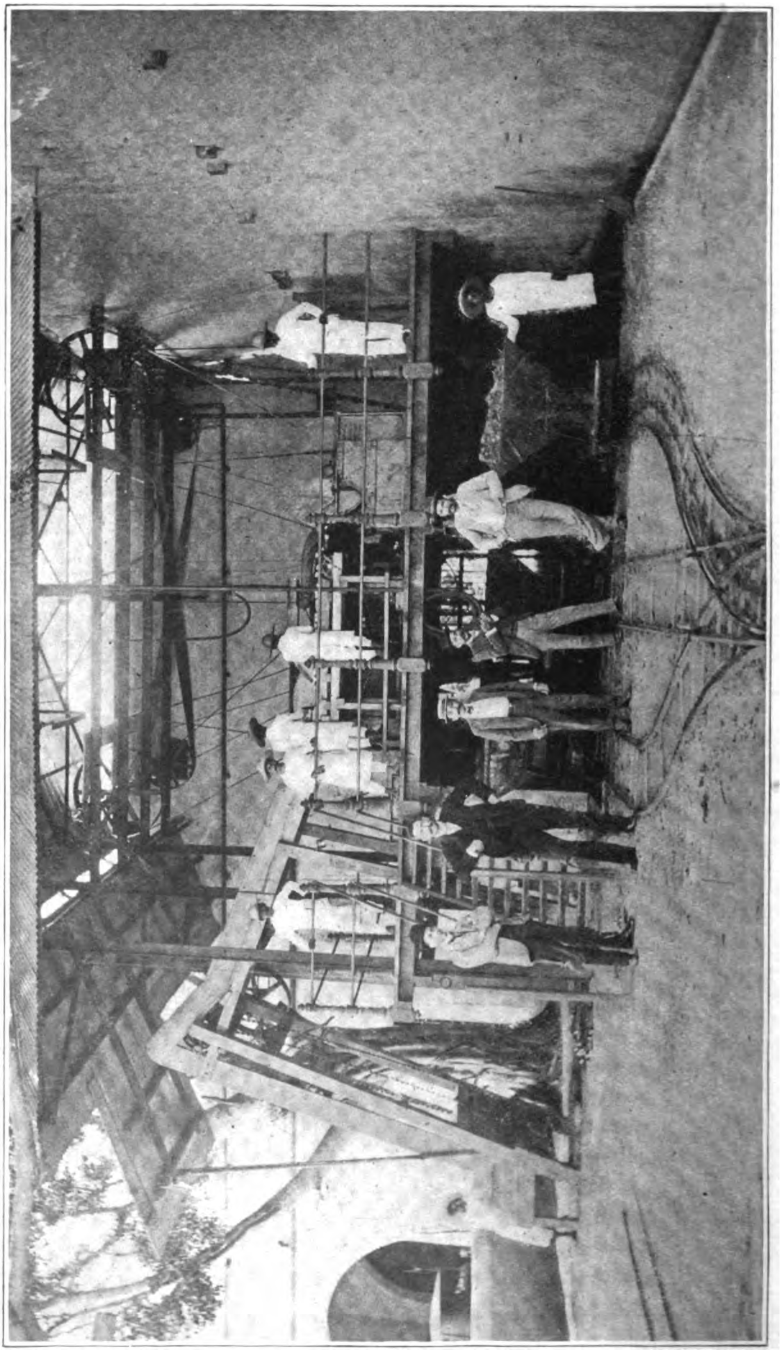
Portable Tramway Used to Transport Fiber to Drying Field and then to Bale Press.



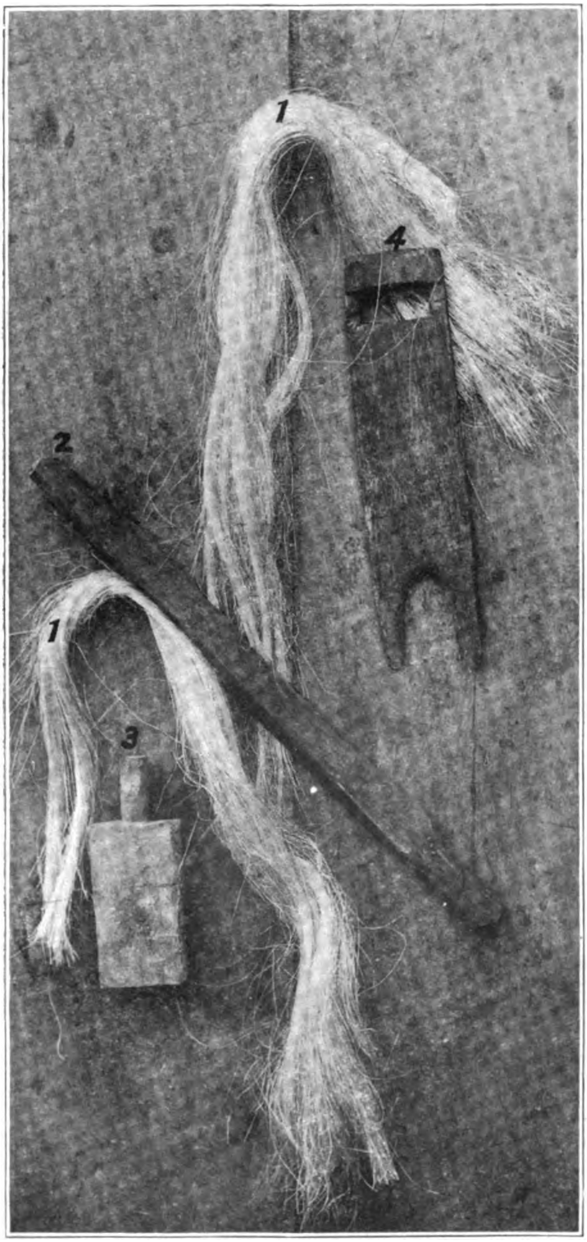
Native Cleaning the Sisal with the Pacché.



Cleaning Sisal by Tonkas; Old Method.

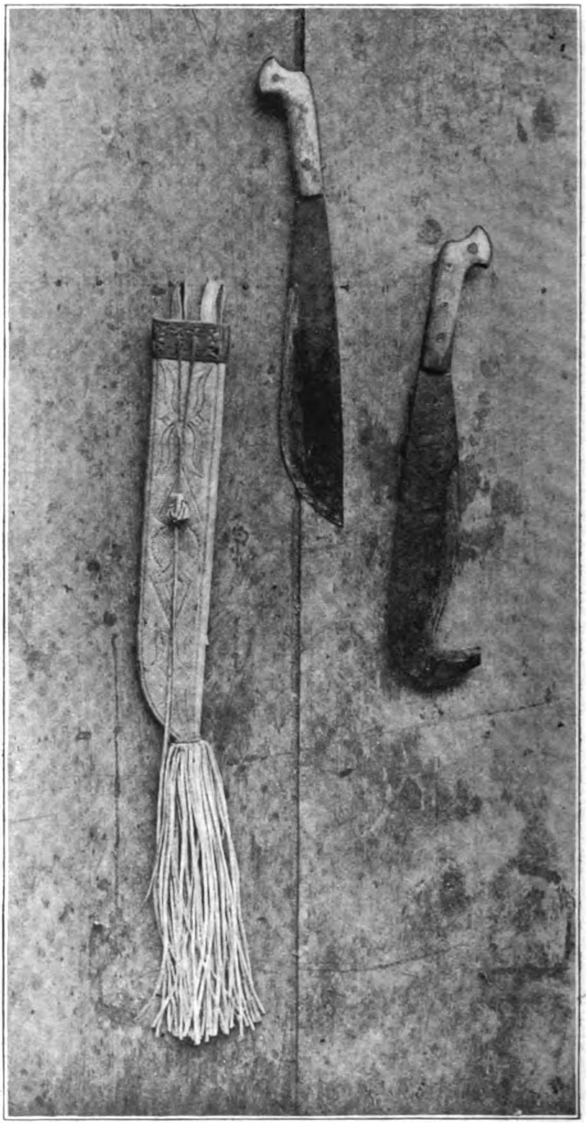


Fiber-Cleaning Machine.

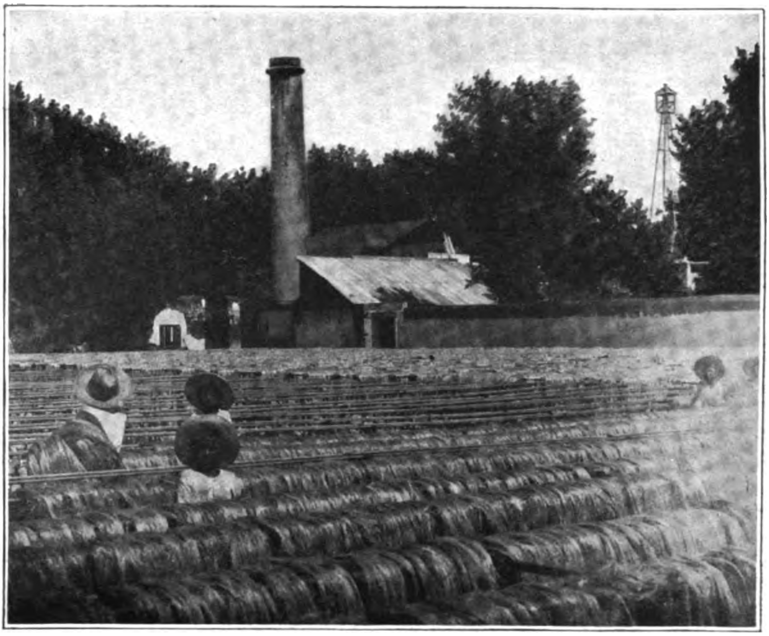


(1) Tresses of the Fiber Cleaned by the Tonkas and the Pacché; (2) Pacché; (3) Peg; (4) Tonkas.

No 271—03——2

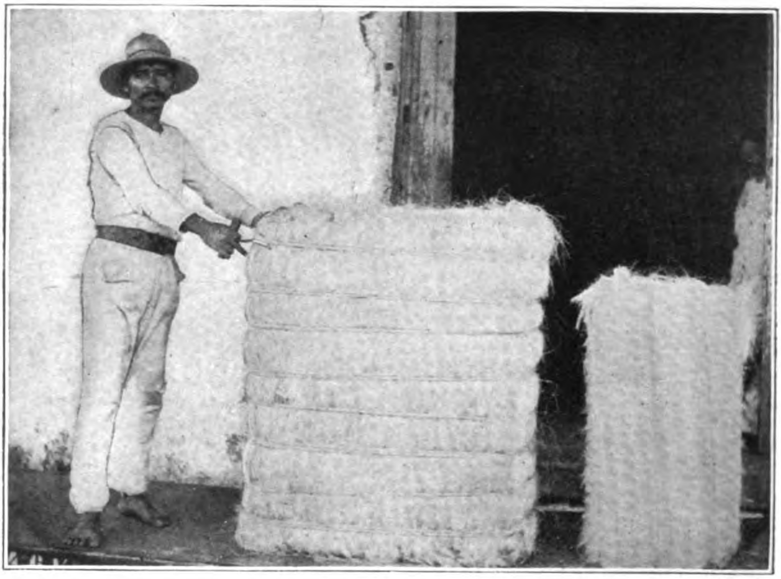


Machete and Corba Used to Cut the Henequen Leaves.

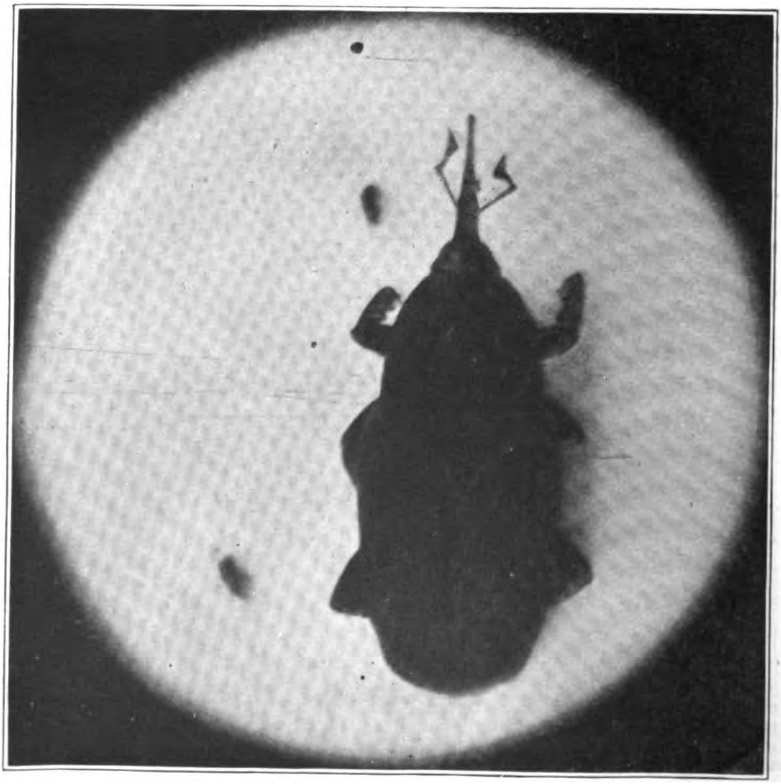


Natives Placing the Sisal on the Drying Cables for Drying and Bleaching.

Sorting and Laying the Fiber Previous to Baling It.



Old Square Bales of Fiber and New Cylindrical Bales.



The Max.

COPPER, SILVER, AND GOLD IN LATIN AMERICA.

In compliance with the request of the United States Geological Survey,* a Department instruction was sent to consular officers in Latin America, requesting reports on mining in their districts. The answers received are given below.

ARGENTINE REPUBLIC.

Soon after the receipt of the Department circular, I prepared and forwarded a letter to the governor of each of the provinces in my district in which minerals exist, viz, Salta, Jujuy, Tucuman, Santiago del Estero, and Catamarca. I have had responses from but two of these—Santiago and Catamarca. The former frankly admits the lack of statistics on which he could base any report as to the mines of his province. From Catamarca, however, I had a prompt and quite full report.

There are located in the different districts of the Province of Catamarca 43 mines or groups of mines, yielding the following:

	Mines.
Gold	4
Silver	6
Copper	5
Lead	1
Mica	1
Iron, sulphate	2
Antimony, sulphate	1
Coal	7
Lime	3
Gold, with silver and copper	6
Gold, with silver	1
Silver, with lead	1
Silver, with copper	2
Iron, with copper	1
Bismuth, with silver	1
Borax, with sulphate magnesium	1

Each of these is owned and worked by private parties under governmental supervision, but they do not pay the owners, who simply work them to keep alive the concession under which they are held, in the hope that some day means may be found of transporting the product to a market at a less cost than is now possible with the primitive and expensive methods available.

Besides these smaller mines, there is a series of mines in the district of Andalgalá, formerly the property of Lafone & Quevedo, which, having been thoroughly examined by the agents of a syndicate of English capitalists, have been purchased, and the managers are proceeding systematically, by modern processes and with capital, to their development. The name of the company is the Capillitis Copper Company, Limited. In the mines they have secured there seems to be an unlimited supply of copper, with by-products, such as lead, silver, and, possibly, some gold.

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*ADVANCE SHEETS have been sent to the Director.

From a recent report of Prof. H. D. Hoskold, director-general of the department of mines and geology of this Government, I learn that in this district are found the following:

Mineral.	Province.
Aluminum, combined	Salta, Jujuy, and Tucuman.
Arsenic, combined	Salta and Catamarca.
Barium, sulphate	Catamarca.
Lime (fluoride, carbonate, sulphate, phosphate, and borate)	All provinces of this district.
Carbon, native (graphite), petroleum, and asphaltum	Catamarca and Jujuy.
Copper, native, oxide, and sulphuret	Catamarca, Salta, and Jujuy.
Iron, sulphate	Catamarca and Jujuy.
Magnesium, silicate and sulphate	Catamarca.
Manganese, oxide and carbonate	Catamarca and Jujuy.
Gold, native	Catamarca, Salta, and Jujuy.
Silver:	
Native	Catamarca and Salta.
Sulphide	Catamarca.
Sulphuret	Catamarca, Salta, and Jujuy.
Lead:	
Carbonate	Catamarca and Salta.
Sulphate	Catamarca.
Sodium:	
Chloride (common salt)	All provinces of this district.
Carbonate	Jujuy and Catamarca.
Sulphate	Santiago del Estero.
Borate	Salta and Catamarca.
Zinc, sulphuret	Catamarca and Jujuy.

JAMES M. AYERS,
Consul.

ROSARIO, *September 24, 1902.*

Consul D. Mayer, of Buenos Ayres, reports that there are no mines of the metals mentioned in his consular district.

BRAZIL.

BAHIA.

Gold occurs in various places throughout this district. It is found chiefly as alluvial gold along rivers, but occurs sometimes in quartz.

At present no gold mines are being worked. There have been two companies organized to mine for gold—the Southern Gold Trust, Limited, with head offices in London, and Companhia Minas da Jacobina, a local enterprise. The property of the first mentioned is located in the interior of the State of Bahia, about 25 miles west of the village of Rio de Contas, which is five days' journey by horse from Bandeira de Mello. The last-mentioned place is the western terminus of the Bahia Central Railroad, two days' journey from Bahia City.

According to the report of the engineer who was sent out to investigate this property, the geological formation is granitic, intersected by numerous small quartz stringers of irregular trend and short length. Through this runs a broad belt of mica and chloritic schist, tilted up on edge, dipping perpendicularly. In some places, the schist crops out, standing in huge sharp-edged slabs; in other localities it is even with the surface, while in still other sections it entirely disappears.

At this mine, the gold is found either as alluvial or in reefs. In the former, the mineral occurs either mixed with ocher-colored sand, silicious iron scinter and sand, or in gravel mixed with sand, all of which formations are said to contain the metal in paying quantities.

In the reefs, the vein is chloritic schist and talc schist interbanded with quartz. The gold is principally in the former, which is quite soft and can readily be sluiced or panned. There is no pyrite in connection with this formation.

The mine has been idle for more than a year, and it is impossible to find out what was the output when it was running, or when it will again be in operation.

The property of the Companhia Minas da Jacobina is located about 280 miles north of Bahia City, 24 miles from the Bahia and San Francisco Railroad. The gold occurs in quartz, and is extracted from the crushed rock by the cyanide process. This mine has not been working for some time. The latest available report of the company, for the year 1895, showed that from 4,792 tons of mineral there were obtained 28,077 grams of gold.

Copper is said to occur in paying quantities in various parts of this district. There has never been a mine worked, but I understand that the Bahia Exploration Company—an English concern which has recently acquired a large area of copper-bearing land—intends shortly to commence active mining and smelting operations.

The copper is found as an impregnation of hornblende (altered granite) with carbonate of copper. Samples taken are said to contain from 2 to 40 per cent of copper, the average being about 4 per cent.

The location of the mine is about 50 miles west of the station of Jaguarary, which is on the main line of the Bahia and San Francisco

Railroad. At present the company is busy making experimental borings, and it will doubtless be some time before copper from this mine will be ready for the market.

I can not find that there are any silver mines in this section of the country.

H. W. FURNISS,
Consul.

BAHIA, *August 21, 1902.*

PARA.

I inclose two reports from skilled miners who have spent years in this district exploring and prospecting, and are qualified to speak authoritatively on the subject.

It will be seen in the accompanying statements that while nothing but alluvial mining has been carried on here, there are large areas of quartz-bearing country which only await a combination of capital and energy to be remunerative.

There are many drawbacks to successful mining, such as climate, expense, difficulty of securing supplies and providing shelter, lack of competent labor, dangerous natives, etc.; but it may be doubted if these obstacles are any greater than are always met with in tropical countries.

The names of the mines are Alegre, Annel, and Serra de Piracaba. The Alegre and Annel mines are located between the Gurupy and Piria rivers, in the State of Para. The Serra de Piracaba is on the Tury-Assu River, in the State of Maranhão. The workings are all surface, or alluvial. None is now being operated. The ore is sulphide and oxide, and the rock ironstone, quartz, and sandstone.

K. K. KENNEDAY,
Consul.

PARA, *July 19, 1902.*

REPORT BY RUDOLF SEYLER.

Few mines exist in this region of Brazil (Para and the Amazon Valley) except alluvial workings deposited from some hitherto undiscovered source. These are undoubtedly very rich in some localities—in fact, enormously so—as in the districts of Amapa, Carsevenne, and Cassepore (formerly contested territory between French Guiana and Brazil). A French company obtained a concession in this district to open the workings and build a narrow-gauge railroad to the mines, but has recently been compelled to suspend work on account of financial difficulties.

All the country along the boundary between French Guiana and Brazil (in the Tumac Humac Mountain Range) is rich in alluvial gold deposits, but is very difficult of access. The rivers, which are the only roads to this region, are blocked by a constant succession of rapids and heavy falls, making exploration very expensive and difficult. The climate also is perhaps the worst in South America, rendering it practically impossible for white men to exist there.

The country between the Rio Negro and Amazon is no doubt also very rich in gold—alluvial as well as vein deposits—but it is likewise inaccessible because of the impassable condition of the rivers, not to mention the danger from savage and untamable tribes of Indians.

The best part of the country, in my opinion, is undoubtedly the Gurupy River district, and from there south through the State of Maranhão. In this district, quantities of gold have been produced from alluvial workings, and very large pure nuggets have recently been found. These workings were discovered many years ago by escaped slaves, and the work was recently resumed with highly satisfactory results. One English company worked for ten years and had a stamp mill and made money, but failed just as it put up an enlarged plant of new machinery, owing to the fact that the managers could not secure a renewal of their concession from the Government, as they worked with escaped slaves and the slave owners had sufficient influence to prevent a new concession being granted. The property thus came into private hands. An American prospector now has a contract with the holders of this property, which is said to be valid, and he will endeavor to interest American capital to develop the mines.

The Pirocana district, also in Maranhão, is rich in gold. It lies directly on the coast, is easy of access, and was worked for four years by a French company with good results. However, this company also failed, owing to bad management. It worked only alluvial ground, and nuggets of 900 grams were found, besides great masses of drift quartz, showing free gold in great abundance. Lately, the Government has granted a concession for these mines, and representatives of an American syndicate are investigating the district. The mines are easy of access, and the companies are prospecting large tracts of ground, extending over thousands of acres. Specimens have recently been sent to the United States by American prospectors, who, however, keep their discoveries to themselves.

A large amount of gold of a very coarse nature is brought in small lots to San Luiz da Maranhão and sold there regularly.

The geological formation of the country is very peculiar. It consists of granite and limonite, magnetic iron, trap rock, etc. There is also a formation of ironstone (limonite mixed with sandstone, apparently fused by volcanic force). This peculiar rock has been designated by Spicks and Martins as "quatersandstone" (vide Dr. Agassiz, "Brazil"). Lately, however, the geologist and mineralogist employed for the Government by the Museo Paraense—Dr. Katzer and Dr. Kratz, respectively—have proposed the use of the name "Para sandstone" for this formation.

For full information concerning the geological and mineralogical features of Brazil, I would advise those interested to procure the Dictionario Geographico das Minas do Brazil, par Francisco Ignacio Ferreira, Rio de Janeiro, Emprensa Nacional, 1885. This fine work contains all the facts about Brazil and its mines, arranged by States, together with a complete list of all the mines ever known (except those recently discovered in the State of Para), as well as all the alluvial deposits, and a list of the concessions granted by the Government. This work is invaluable to all who are interested in this subject. It is a credit to the Brazilian nation and a monument of diligent research.

As regards the ores found in this region, they are of both kinds—sulphates and oxides. The ore is mostly found in quartz veins, traversing the country rock. These ores must be very rich in the true veins, as drift quartz showing free gold in large quantities is often sold by the natives living in these districts, who find it in the creeks below the quartz outcrops and on the hillsides, showing clearly that they have traveled only a short distance.

American prospectors are now at work in the consular district of Para, and, once they can induce substantial investigators to examine their discoveries, no doubt many rich quartz reefs will be opened up and a large and immensely wealthy mining district will be developed. The first comers will take all the prizes.

I sincerely hope that success will crown the work of the American prospectors now investigating mines in the States of Para, Amazonas, and Maranhão, and that Americans may become the owners of these rich fields and not leave such great opportunities to the English and German capitalists, who are already rapidly putting men into the field.

REPORT BY GUILHERME GERDEAU.

The auriferous territory of the States of Para and Maranhão consists of a comparatively small region in the valley of the Amazon, lying on the northeast coast of said States.

The country becomes hilly and volcanic towards the Caite River. The formation is white sand and yellow earth, changing to yellow and red clay, mixed with iron pyrites, in the hills. In this latter locality great quantities of quartz fragments, phosphorite, and slate are scattered, but the true ledge, or mother lode, has never yet been found.

This auriferous formation extends between the Caite River and the Tury-Assu River, and gold has been found in small quantities in nearly all the tributaries of the rivers Caite, Piria, Gurupy, Maracassume, and Tury-Assu. It can be found in larger quantities in the upper creeks. Nuggets of 1 gram have been frequently taken out of the gravel in the beds of these creeks. The runaway slaves from the Para and Amazonas States in former days resorted to these creeks, where they panned gold as far back as fifty years ago with considerable success, a large amount of gold, in the aggregate, having been taken out by them.

Mining companies, however, have never been able to work these deposits with any success. One great drawback is the fact that no skilled miners can be secured here, and the natives will not perform manual labor for any price. They can be employed only as hunters. Little effort, it should be remarked, has as yet been made by skilled prospectors to explore these vast fields. The work is scarcely begun.

Reefs of gold-bearing quartz run from east to west right through the country, and in places they are very rich. Drift quartz, thickly veined with gold, is found in the hills and gulches in large quantities. On the Gurupy River two quartz mines have been discovered on the estate of Baron de Kapanema which are very rich, and some very highly gratifying assays have recently been made from them. These mines are now being developed by local capital and will later be placed on the market, and they hold out great promise.

Water is to be had in abundance anywhere in this country.

All the clays on the hills show small quantities of gold. The gulches are usually rich in placer gold. A formation of clay, mixed with quartz and iron pyrites, runs about 2 feet below the surface and yields from one-fourth of a gram to 1½ grams of fine and half-coarse gold to the pan; nuggets of 1 gram are found in plenty. The gravel of the creeks also yields fine gold. The quartz reefs run at a depth of from 9 to 18 feet below the surface.

It is very difficult to work mining claims in Brazil, as there are no mineral laws, and the Government is slow to grant or sell mineral claims, especially to foreign companies. No license is granted or sold to explore or prospect for gold in this country, so that it is practically impossible to secure a good mine here upon a reasonable basis. About three-fourths of the land here belongs to the General Government, and the balance was long ago granted in lots, called "sesmarias," for alleged colonization purposes. These sesmarias were granted by the former kings of Portugal to favored private individuals during the eighteenth century. Most of them carry subsoil rights, which can be purchased—provided the heirs can be found and the price agreed upon; the latter is not the least of the difficulties, as these people hold their wild lands at unreasonably high figures. It is very difficult to locate the heirs of these sesmarias. They are scattered all over Brazil, and, when found, they often insist upon such hard conditions that a sale is practically out of the question.

The rivers above mentioned have always enough water to render navigation easy with steam launches, and in the rainy season the rapids and falls are covered. It should be understood, however, that the climate is deadly and the Indians very dangerous. No one can expect to travel on these rivers and escape the fevers common to the country.

PERNAMBUCO.

Consul W. L. Sewell reports, August 27, 1902:

There are no copper, silver, or gold mines in this section of Brazil. Sandstone predominates on the coast, with limestone in places, and granite in the interior.

The consular agent at Natal reports on the production in the State of Rio Grande del Norte as follows:

Nothing is really known as to the existence of copper or silver, although copper may be found in the north and northwestern part of the State, adjoining Ceara.

Gold has been found in the mountainous northwestern parts and has been used by local goldsmiths. With modern appliances, these deposits might be worked to advantage were there State or federal laws affording protection to explorers.

The rock is generally quartz and granite of volcanic formation; limestone and marble are also found. A hard, stonelike clay has been met with in river beds, with small quantities of gold.

SANTOS.

I have found it very difficult to obtain particulars of importance. The most reliable data are from Mr. William Huggins, an American who lives in the city of Sao Paulo and has been prospecting for gold in this country for several years. He is now preparing to develop one of his discoveries in the State of Sao Paulo. He says gold has been found in small quantities all along the coast range of mountains; at Bananal, near the border of the State of Rio de Janeiro; and at Rio dos Laovas, near Santa Cruz dos Paralburas, near the city of Sao Paulo. The Jesuits did some work in the gravel in the Jaragua Mountains some time during the seventeenth century. In the stream near Jundiaby the gravel shows good indications of gold. In the valley of the Reburade Equape, on the borders of the States of Sao Paulo and Parana, in a number of localities vestiges of old workings still exist. The workings were all in gravel, in the beds of streams and low lands adjoining. They were of small extent and of very little depth. These deposits were carefully worked over and little has been left in the form of gold. It should be borne in mind, however, that the system of working and the tools employed were very crude, hence the investigation was superficial.

Iron is found in several places in the State of Sao Paulo. At Ipanema, the Government spent a great deal of time and money in developing mines, and, although the ore is of a superior quality, the lack of native coal and foreign competition forced the closing of the works. On the borders of the States of Sao Paulo and Minas, there are different kinds of ore deposits, but for the want of coal and means of transport they have never been developed. Lead has been found in many places, and time and money have been spent on working it. At Paranahyba lead (galena) has been discovered in limestone, accompanied by zinc and copper sulphide. The work was abandoned, as the ore was found only in very small pockets. At Yporanga galena containing silver has for years been known to exist. A great deal of exploring has been done at different times, but so far the silver has been found in small quantities, while the lead veins are thin. On the Rio Itapuapuana, lead is also found containing silver, but in small quantities. Other places on the Rebeira have shown good indications of galena, but none of sufficient importance to warrant working has so far been found. Manganese has been discovered in several localities through this country, but no development is at present going on, due to the want of coal and transportation.

Native antimony is found on the Itapuapuana River, but in small quantities. On the Itovare River, near the borders of the States of Sao Paulo and Parana, diamonds are found, but they are very small. Serpentine is discovered in the limestone in many localities. Gold is found in the State of Parana at Ponte Grosso, where vestiges of the old works still exist. In the State of Santa Catharina, gold, coal, and iron have been found in several localities. Gold indications near Curityba are very promising, and on one occasion a party went so far as to put the machinery on the ground for its development, but found that the Government would require such a heavy tax on his enterprise that he had to abandon it. But very little exploring has been done in that State.

In the State of Rio Grande do Sul, gold is being worked for at Laovas. This is the second attempt at that point. In the first one, the company spent all its capital on transportation and buildings. At Camaguam, in that State, a copper mine has been in operation for three years, and is at present adding to the machinery. Everything in the mining line is in its infancy, comparatively speaking, throughout Brazil. As to what extent the Government encourages the development of her mineral resources, I can not definitely state. Mr. Huggins told me that the Government offered him liberal concessions, while others have declared that half of the output would be exacted by the Government authorities. It is impossible to get even the probable output of any of the mines in operation. In fact, very few in this consular district are in operation at all, and these work irregularly. The district is very large—comprising the four States of Sao Paulo, Parana, Santa Catharina, and Rio Grande do Sul. In the State of Minas, I am informed, they produce a quantity of minerals of various kinds. The surface indications for coal, copper, gold, silver, and iron are good in many localities, but as yet have not been developed.

J. H. JOHNSON,
Consul.

SANTOS, *August 4, 1902.*

CHILE.

The Government of Chile has no statistics on mines and mining, notwithstanding the fact that the country possesses varied mineral resources, including gold, silver, copper, and nitrate. For this reason, it is difficult to procure reliable detailed information, as all data must be obtained through private sources.

The following list of copper mines in Chile was furnished by Jackson Brothers, of Valparaiso, who export practically all the copper products of the country. The statistics given therein include the year 1901. In the list, the name of the mine or establishment, the name of the company or proprietors operating same, the department in which it is situated, the year in which established, the kind of products and the output of each, and the depth of mine are given.

Department.	Name of mine or establishment.	Name of owners or proprietors.	Year established.	Kind of products.	Annual production.	Depth of mine.
					Tons.	*Feet.*
Lautaro	Lota	Compañia Esplot. de Lota y Coronel.	1856	Bars and ingots.	7,000	
Rancagua	Puquios	Compañia de Minas y F. de Puquios.	1897	Regulus	(*)	
Melipilla	Natalgua	Compañia Minera de Naltagua.	1898	do	(*)	
Victoria	El Volcan	Compañia Minera de Maipú.	1884	Bars	500	320
Santiaga	Maitenes	Compañia Esplot de Lota y Coronel.	1884	do	500	
	Central	Francisco de P. Perez	1880	Regulus	250 to 300	
	Tiltil	Sociedad Colectiva	1900	do	(*)	

* Beginning operations.

Department.	Name of mine or establishment.	Name of owners or proprietors.	Year established.	Kind of products.	Annual production.	Depth of mine.
					Tons.	*Feet.*
Putaendo.	Máquinas de Catemou.	Sociedad de M. de C. de Catemou.	1870	Regulus	125	
	Nilgue	do	1866	do	500	
Quillota	Fundicion de Llaillai.	Guillermo Carvallo	1900	do	500	170
	El Cobra de Melon.	Sociedad de M. de C. de Catemou.	1885	do	150	
La Ligua	Peña Blanca	Otto Harnecker	1888	do	150	230
	Cabildo	Sucesion Cerveró	1866	do	800	390
	Los Anjeles	Sociedad Española de Fundicion.	1899	do	300	
Petorca	Las Palmas	José R. Espinoza	1880	Bars	100 to 150	170
	Cantarito	do	1898	do	50	230
	Mauro	Francisco Vergara I.	1860	Regulus	100	500 300 170
Illapel	Chalinga	José Tomas Ramos	1854	do	Closed.	230
	Geisse Hnos	Geisse Hnos	1875	do	150	160
	Quilomenco	J. M. Echavarria	1892	Bars and regulus.	100	
Combarbalá	El Espino	Sucesion Francisco Geisse.	1896	Regulus	25	
		Castellanos y Compañia		Bars and regulus.	75	
Chañaral	Chañaral	Copper Corporation of Chile.		Regulus	1,100	1,400
		Besa y Compañia	1880	do	1,300	650
Antofagasta	Playa Blanca	Compañia Huanchaca de Bolivia	1892	do	2,000	
	Fundicion Templeman.	Compañia Limitada	1897	Bars and regulus.	1,600	
Cobija	Gatico	Artola Hnos	1861	Regulus	1,200	
Tocopilla	Buena Vista	Gmo. E. Carne y otro	1880	do	Closed.	
Ovalle	Panulcillo	Central Chile Copper Company.	1895	do	1,400	320
	Tongoy	Sociedad Chilena de Fundiciones.	1860	Bars	700	
	Guayacán	do	1856	Bars and ingots.	8,000	
Serena	La Compañia	Sucesion C. J. Lambert	1850	Bars	700	180
	Higuera	F. Vicuña	1855	Regulus	1,000	980
Huasco	Astilleros	Santiago Vicuña	1890	Bars	600	
Freirina	Arenillas	Sociedad Minera del Morado.	1860	Regulus	Closed.	590
	El Jirio	Santiago Vicuña	1896	Bars	1,000	
	Labrar	Sucesion P. Gonzalez M.	1900	Regulus	700	
	Canto del Agua.	Sucesion Ovalle	1870	do	600	
	Chañarcitos	Sociedad de M. y F. de Carrizal	1857	do	1,800 to 2 000	
Vallenar	Las Breas	Sociedad Minera El Orito.	1888	do	700	620
Copiapó	Tierra Amarilla.	Sociedad Industrial de Atacama	1857	Bars and regulus	2,000	650

The following figures give a comparative statement of the exports of copper from Chile for five years, the amount being designated in quintals (46 quintals in a ton):

Year.	Bar copper, fine.		Copper regulus.		Copper ores.		Copper, fine.	
	Quintals.	*Tons.*	*Quintals.*	*Tons.*	*Quintals.*	*Tons.*	*Quintals.*	*Tons.*
1901	526,950	11,238	136,489	2,965	486,858	10,583	679,825	14,799
1900	442,174	9,612	105,172	2,286	439,436	9,553	565,062	12,284
1899	400,955	8,716	72,006	1,565	646,028	14,044	552,097	12,002
1898	448,585	9,759	81,141	1,764	324,919	7,063	554,538	12,055
1897	418,665	9,101	86,538	1,881	94,550	2,055	482,112	10,479

Increase in year designated over preceding year.

Year.	Amount.	
	Quintals.	*Tons.*
1901	114,763	2,494
1900	127,728	2,776
1899	125,287	2,722
1898	197,713	4,276
1897	161,800	3,517

Relative proportion of the different descriptions of copper produce exported.

Description.	1901.	1900.	1899.	1898.	1897.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Bar copper	77.51	78.25	72.62	80.89	86.84
Copper regulus	9.16	8.01	5.97	7.56	8.85
Copper ores	13.33	13.74	21.41	11.35	4.51

Shipment of bar copper in 1901 and 1900 to the different countries, with relative increase or decrease.

Country.	1901.		1900.		Increase.		Decrease.	
	Quintals.	*Tons.*	*Quintals.*	*Tons.*	*Quintals.*	*Tons.*	*Quintals.*	*Tons.*
England	400,369	8,704	339,644	7,383	60,725	1,321		
France	63,410	1,378	60,731	1,320	2,679	58		
Germany	5,118	111	19,385	421			14,200	310
Orders not designated	57,459	1,249	18,218	396	39,178	863		
United States	395	8	3,913	85			3,518	77
Peru	132	3	220	5			88	2
Total	526,883	11,453	442,111	9,610	84,772	1,843		

The last table shows only the exportation of fine bar copper, and does not take into account copper regulus and copper ores. The total exportation of fine copper for 1901 was 679,825 quintals (14,799 tons), as compared with 565,062 quintals (12,284 tons) in the preceding year, an increase of 114,763 quintals (2,495 tons).

Capiapo.—In this district, the most northerly territory under the Valparaiso consular jurisdiction, the gold and silver being mined at this time is practically nil. The famous silver mines of Chañarcillo and Chimbote, which once yielded millions of dollars, are located in this district, but they have so nearly given out that their production, workings, etc., are no longer reported.

Of gold mines, there are some few lodes in the district above mentioned, but they have never been worked to any considerable extent, and there is no record of their production. Preparations are now being made by an English company to reopen an old gold mine near Copiapo, called "Jesus Maria," from which fair results are anticipated.

The following statement of a number of copper mines in the Copiapo district is a fair basis upon which to estimate the state, production, etc., of some thirty more copper mines in the same territory:

Name.	Location.	Depth.		Monthly production.		Class of metals.
		Meters.	*Feet.*	*Tons.*	*Per ct.*	
Dulcinea	Puquios	410	1,345	1,200	16½	Sulphides and carbonates.
Republicana	do	250	820	10	17	Carbonates.
Descubridora	Chico	110	361	50	12	Sulphides.
Antonia	Ojanco	60	197	30	16	Carbonates.
San Francisco	do	340	1,115	300	16	Sulphides and oxides.
Carmen Alto	do	225	738	30	14	Carbonates.
Do	Morado	140	459	25	22	Sulphides.
Fortuna	do	60	197	30	18	Do.
Viuda	Algorobo	270	886	800	13	Do.
Descubridora	do	160	525	20	16	Do.
Estaca	do	190	623	30	15	Do.
Emeliana	do	90	295	80	18	Carbonates.
Fortunata	do	140	459	80	20	Carbonates and sulphides.

The majority of the rock in which these ores are found is granite, with a small per cent of andesite, porphyry, and syenite.

Coquimbo.—I am informed through the intendente of the Coquimbo district that no statistics are kept of the production or working of mines in that territory. There are in the district 1,883 mines which paid working license for the year 1902. The claims are for a total surface right of 12,345 acres of land, for which the sum of $32,400 in Chilean currency was paid. These mines are classified as below:

Copper	1,398
Silver	154
Silver and gold	1
Silver and copper	47
Gold	165
Iron	4
Cobalt	2

Copper and gold	33
Silver and lead	6
Manganese	61
Quicksilver	9
Copper, silver, and gold	1
Gypsum	1
Lapis	1

Coronel.—There are no copper, silver, or gold mines in the Coronel district, coal being the only mineral product of that locality.

Talcahuano.—There are no detailed statistics available concerning mines or mining in this district. No copper or silver is mined, and the production of gold for the entire district was estimated at $10,000 last year. The gold is mined in a small way, there being no large companies operating in that part of the country.

Punta Arenas.—Moritz Braun, United States consular agent at Punta Arenas, reports that there are no copper or silver mines in southern Chile and no gold mines of any importance. The only mining is for gold, and the claims worked by small squads of men and individuals are so numerous and scattered over so great an extent of territory—through most of which there are no roads—that it is impossible to secure a list of the claims. They are situated principally in the large island of Terra del Fuego and upon smaller islands in the vicinity of Cape Horn; also on the Patagonian coast line between Cape Dungeness and the Gallegos River.

The soils where the claims are situated are, generally speaking, alluvial, and the method employed in working the mines is very simple, consisting of primitive washing apparatus. The depth where the yellow metal is found is from 10 to 15 feet below the surface.

Owing to the manner in which the gold is mined, it is practically impossible to collect exact statistics as to the output. It is estimated that the production of gold in this territory for the year 1901 was 100 kilograms (220.4 pounds) and the number of men engaged in gold mining approximately 500.

Gold is not taken from quartz in this district. At various times, attempts have been made to produce gold by more elaborate methods than those now in vogue, but they have all ended in failure. Gold mining in this section seems only to pay in a small way and is engaged in by the poor working classes—Austrians, Italians, and Chileans—who are willing to lead a lonely, rough life in a climate that is exceptionally severe. The average amount earned per month by those engaged in mining in this section of Chile would not exceed $50 in United States currency.

R. E. MANSFIELD,
Consul.

VALPARAISO, *November 1, 1902.*

NO 271—03——3

ANTOFAGASTA.

The following statement was given to me by Mr. Edward Jackson, M. E.:

COPPER.

Chuquicamata.—This mineral district is located 12 miles north of Calama, and is connected with the port of Antofagasta by a railway, the total distance being 163 miles; freight, $4.50 gold per ton. The district comprises 8 square miles; height above sea level, 9,000 feet. There are about six principal mines, averaging 300 to 350 feet in depth.

The country rock is pure granite, having 200 feet of decomposed granite and rhyolite on the surface. The lodes are true fissure lodes, but not well discernible on the surface, owing to the decomposed state of ground. The ores are chiefly atacamite (oxychloride), anhydrant sulphate, sulphates, silicates, cuprite, and black sulphides; gray copper and sulphites are also abundant. The atacamite is spread over the upper part of the ground and is disseminated through the entire rock, forming hills of "smalls" called "llampas." I consider that there are at least 15,000,000 tons of decomposed rock, averaging one-half of 1 per cent of copper. At present, this is sieved and picked up to 15 per cent.

The chief mines are Poderosa, San Luis, Rosario del Llano, Zaragoza, Panizo, Constancia, Emma, Criselia, and Codiciada. The annual production of this district is 20,000 tons of ore, averaging 18 per cent. This production could be enormously increased if the upper rock were quarried on a large scale. The total absence of water prevents this at present.

A capital of $150,000 would be sufficient to bring water by piping the River Loa or San Pedró, a distance of 40 to 45 miles.

El Abra.—This mineral district is located some 30 miles farther to the northeast and connected with the same railway by a good cart road of 18 miles. The station is 190 miles from the port; freight from mines is $7.30 gold per ton. The height above sea level is 10,000 feet. There are only a few mines, all on the same lode. The principal ones are the Maria, Empalme, and the Laura; depth of working, 300 to 350 feet. The country rock is granite, both micaceous and hornblendic. The lode is well formed with a quartz gangue. The ore consists chiefly of silicates and yellow sulphurets; black sulphides and carbonates are also found. The annual production is 3,600 tons. This will be shortly increased, as a good ore-dressing plant has been erected. The average is 19 per cent.

Conchi.—This district lies close to El Abra, but is not worked on any great scale. The workings are mostly filled up with dumps. The chief mine—Anita—is 330 feet deep. The lodes seem well formed in granite rock, and, judging from the excavations, the ores near the surface—chiefly carbonates and silicates—must have been abundant. The actual production per year is 1,000 tons of 15 per cent. The district is worth investigation.

Lomas Bayas.—This mineral district lies about 30 miles to the south of the Antofagasta Railway, 60 miles from the port. It is connected with the station by a good cart road. Freight from mines to port averages $4.50 gold per ton. The height above sea level is 6,000 feet. There are two good mines—the San Gorge and Andacollo. The country rock is micaceous granite. The lodes are well formed, of quartz gangue. The ores consist chiefly of carbonates, cuprite, brochantite, and gray copper. The depth attained is 550 feet, but from 250 feet downward only iron pyrites have been found, with some molybdenite. The annual production is 2,400 tons of 15 per cent.

As in the districts previously described, there is no water in the vicinity, although a shaft has been sunk about 600 feet in the valley.

Desesperado.—This mineral district is about 46 miles to the northeast of the port of Antofagasta, with which it is connected by a good cart road. Some miners prefer taking the metals straight to nearest point on the railway, 56 kilometers (34.8 miles). Freight from mines to port, $4.10 gold per ton.

There are several mines, but none of much importance. Descubridora is 80 meters (262 feet) deep and Marta 100 meters (328 feet) deep. The annual production is only 1,000 tons of ore, averaging 18 per cent. The country rock is granite. Lodes of quartz average 2 feet in width and are well formed. The ores are chiefly carbonates and oxides. There is no water.

Naguayan.—This district is quite close to the former, and with lodes having the same character. Some mines, like the Fortuna, have a great deal of specularite iron ore. This mine is 200 meters (656 feet) deep. The copper ores do not go down below 80 meters (262 feet) in any one of these mines, the percentage dwindling away gradually in the iron pyrites. The production, formerly, was quite 5,000 tons a year of 18 per cent ore, but to-day it is virtually nothing.

Chacaya.—This is another mineral district in the same rock and with analogous lodes and metals. Some mines have produced rich bunches of ore, and the ores that are worked now, like the San José, yield similar eyes of 30 per cent ore, chiefly black oxides; but the lodes are very inconstant and do not tell in depth. This is close to the coast, and only a few miles north of Naguayan. A tunnel has been run into the hill 400 feet on the lode. The production is insignificant.

El Cobre.—This mineral district has been worked to a large extent in former years. It lies immediately on the coast, about 42 miles south of Antofagasta. In the years 1850–1860, the production was large; but after being abandoned, work was resumed three years ago with bad results. A tunnel 210 meters (688.8 feet) in length has been run into the hill off the lode, in very broken ground. The vertical depth attained is about 100 meters (328 feet). The principal mine is Pocas. The rock is granite and quartz lodes. The ores are carbonates, oxychlorides, and oxides. Small eyes of sulphurets have also been found. The present production is nil.

There are several other districts on the coast—Hornos, Portezuelo, Blanco Encalada, etc.—all in granite, that have insignificant workings, which add a little to the general production.

SILVER.

The only two silver districts of importance in this Department are Caracoles and Inca Caracoles.

Caracoles.—This district lies 110 miles from the coast, due east of the port of Antofagasta. It was discovered in the year 1869, and owing to the number and richness of the lodes, the population reached 20,000 in 1876. To-day this has been reduced to 500. Communication is effected with the port of Antofagasta by a good cart road, 24 miles in length, to the station Sierra Gorda, on the railway, which is itself 105 miles from the port. Freight from mines to port costs $15 a ton in Chilean currency, or, say, $5 gold. The country rock is limestone, gray and black, of the Jurassic formation, which is here and there broken up by porphyry. The lodes have calespar, gypsum, and baryta for a gangue or matrix, and the ores are chiefly chlorides, chlorobromides, iodides, and mixtures of chlorides and sulphides. The production of Caracoles has been estimated at 60,000,000 ounces fine silver. At present the production is very reduced, not exceeding 7,000 ounces per month.

There are several shafts, ranging from 300 to 600 feet in depth, and there is one—the Deseada shaft—2,500 feet deep. The ore deposits are nearly all superficial, some zones only reaching a depth of 600 feet, where the ore is very poor. The ore is generally found in pockets or in chutes of limited sizes. Deep mining has been abandoned for several years, as the Deseada shaft and others have proved that the veins split up into small fissures. There are several mines still which require more careful study. Any small pocket can repay years of exploratory work.

Inca Caracoles.—This mineral district was discovered soon after Caracoles. It lies 20 miles north of Calama, with which town it is connected by a good cart road, which makes a circuit 40 miles in length. Calama is 150 miles from the port by rail. Freight from mines to Calama is $12 in Chilean currency ($4 gold) a ton and $12 more to the port, equal to $8 gold in all. The country rock is porphyry; gangue, chiefly decomposed baryta and peroxide of iron. The lodes are formidable, ranging from 3 to 6 feet in width. The ore is chiefly chloride, finely disseminated in all the lodes and averaging 40 ounces to the ton. From 1872 to 1883 the ores were treated at an establishment on the River Loa, at Chacance, 45 miles distant, but since this was washed away by a flood very little work has been done, owing to the absence of water and heavy freights. Once a pipe is laid down to provide this mineral district with water, this will be one of the most productive silver centers in the world, as there are an immense number of lodes and all contain 30 to 40 ounces of silver. The ore is splendidly adapted for lixiviation with hyposulphite, and does not require roasting. At present, the price of water is $4 gold a ton. The same piping which is to serve the copper district of Chuquicamata could be prolonged to the Inca. This would cover a distance of 45 miles from the river to Chuquicamata and 16 miles more to the Inca, or 61 miles in all. The principal mines are the Irene (300 feet deep), the Santo Domingo, Arturo Prat, Marquina, Blanca, and Descubridora.

GOLD.

There is only one district of importance which produces this precious metal.

San Cristobal.—This district lies 42 miles southeast of the station Cuevitas, on the Antofagasta Railway, which is itself 50 miles from the port. There is a good cart road to Cuevitas. Freight to the port is $8 per ton for carting and $4.10 for railway freight, or $3 gold in all. The mines were discovered in 1882, and have been worked ever since slowly and with great difficulty, owing to the lack of water. This has to be taken up from the railway and costs about $4 gold a ton. The country rock is rhyolite and the lodes are quartz. The gold is found in its native state with little or no pyrites, but there is a good deal of carbonate of lead and silicates of copper. The principal mines are the Bolaco, Palmira, Pobre Diablo, Bolaquito, etc. The deepest is the first named—300 feet. The Palmira has a tunnel 600 feet in length along a 3-foot lode, which averages 1 ounce to the ton. The Bolaco has given very rich ore in a vein of 2 to 3 inch thickness which accompanies the lode. The production, which for a long time was between 500 and 700 ounces per month, is now only about 100 ounces.

With a water supply, this district would have a large production.

CHARLES C. GREENE,
Consul.

ANTOFAGASTA, *November 12, 1902.*

IQUIQUE.

SILVER.

The names of silver mines in the mineral section of Huantayaja, Province of Tarapaca, are: San Agustin, San Pedro y San Pablo, Discubradora, San Juan, Hilguera, Maria, San Bartalo, Pique del Llano, Colorado, Alliance, and Fortuna. The depth of workings of these mines varies from 200 to 1,300 feet, though there is a shaft in the San Agustin mine to a depth of 2,000 feet. The last 700 feet is through solid rock.

The annual production for the last ten years is stated at about $400,000. During the seven years preceding 1892, it is estimated that $15,000,000 worth of silver was taken from this district. The total amount that has been taken from this group of mines is said to be $22,000,000.

The general character of the ores is chlorides. The formation of the rock is porphyritic and calcarious. The very rich ores and white silver (about 95 per cent pure) are usually found in "pockets" near the contact of the calcareous porphyritic rocks.

In the mineral section of Santa Rosa, a short distance from the above-mentioned mines, are the following silver mines: Pique Gallo, Consequencia, Paniso, El Grande, and others of less importance. These mines range in depth from 200 to 900 feet. I have not been able to get any reliable information as to the silver taken from this group. During the last ten years, the Paniso mine has produced about $1,600,000.

COPPER.

In the district of Callahuase, at an altitude of 12,000 or 13,000 feet, are surface workings to a depth of 60 feet, which have a lay of about 25 per cent copper. The lodes are from 3 to 4 feet wide. But little work has yet been done, on account of the lack of transportation facilities.

In the district of Copa Queri and the surrounding country where copper claims have been taken up, the rock is of alluvial formation, from 3 to 30 feet in depth, in which is found copper of 4 to 5 per cent.

On the western slope of the Andes is a group of mines owned by the Mocho Mining Company, which have been worked to a depth of about 350 feet. During the past year, about 250 tons of 30 per cent metal have been shipped from these mines. The mines are in stratified earth and the metals are found in lodes 2 to 4 feet wide in beds of jasper clay, quartz, and sulphate of lime.

GOLD.

Gold has been found in a granite formation, at a depth of about 200 feet, near the minor port of Junin. As yet, only a few samples have been taken from the mine.

C. S. WINANS,
Consul.

IQUIQUE, *July 24, 1902.*

COLOMBIA.

COLON.

MANGANESE.

The principal producing mines of the district are the Soledad and Concepcion, of the Caribbean Manganese Company. They are situated at Nombre de Dios, about 40 miles east of Colon. The deepest workings are 250 feet below the surface. The annual production, when undisturbed by revolutions, is 10,000 tons; total production so far, 50,000 tons.

In the last two years, the work has been disturbed or entirely stopped at times by troubles incident to the revolutionary state of the country.

The character of the ore mined is oxide, not sulphide. The ore is found in a decomposed shale. At some points this rock has been metamorphosed to a jasper.

The Caribbean manganese mines are owned by citizens of the United States. Colombian citizens have also worked a mine at Isla de Culebra, situated near the coast, not far from Nombre de Dios. This has been worked for three years, and during that time has produced an aggregate of about 4,000 tons. The operation of this mine has been discontinued, and it is not known whether work will be resumed.

Various companies, no longer in existence, have also produced about 6,000 tons of manganese, so that the entire production of the ore in this consular district is about 60,000 tons.

GOLD.

The only other mineral produced in this district is gold, and the operations in this metal are as yet tentative, but promise good results.

The gold mines are situated in the Portobello range of mountains, where the Antigua Indians, and afterwards the Spaniards, carried on mining in a crude and primitive way. They evidently got considerable quantities, but only what is known as free gold, apparently not being acquainted with any methods for the treatment of sulphides, as their workings stop where these come into the vein in any quantities.

The mines worked by these Indians are called the Santa Maria, Santa Catalina, and El Capitan.

On the lines of these old mines, Mr. H. Rothwell, M. E., and his associates, citizens of the United States, have commenced mining operations. His deepest workings are about 100 feet below the old Indian ones. Operations commenced only last December, and considerable work has still to be done before the installation of proper machinery for the reduction of the ore.

The rock containing the gold veins consists of clay-stone porphyry, overlaid with a heavy plate of andesite; the character of the ore is iron sulphide, very strong, and from 9 to 14 feet wide; it is oxidized for a depth of from 30 to 50 feet, but even at a depth of 100 feet a partial oxidation of a part of the vein is found. The ore runs from $2.50 to several hundred dollars per ton. What Mr. Rothwell is working at present averages from $15 to $20 per ton.

When the three mines are opened up and equipped, they will produce probably about 100,000 tons per year.

The best method of treating these ores is not yet fully decided.

OSCAR MALMROS,
Consul.

COLON, *July 29, 1902.*

PANAMA.

No silver or copper mines are being worked in this department, or in the district, so far as I know. Very few gold mines are being worked, on account of the disturbed conditions which have existed for the past three years. The only large one being operated in this department is the Cana mine, about 180 miles from this city. It has been worked to a depth of 550 feet, and produces about $80,000 monthly. The total production has been several millions. The soil is soft and of a shattered formation, mostly porphyry free gold. The nature of the country rock is stratified porphyry. It assays from $40 to $60 per ton. This mine is the property of an English enterprise, the Darien Gold Mining Company.

In the Province of Veraguas, about 70 miles from the city of Panama, there are a number of small mines, but none of them has as yet been worked to any extent. However, machinery has been ordered for some of them and the owners expect to begin work very soon. The names of some of these mines are:

Name and location of mine.	Depth of workings.	Nature of rock.	Character of ore.	Assays, per ton.
Little Chief, near Canazas, Veraguas	Less than 100 feet	Soft granite	Sulphide	$20.00
Las Manitas, near Canazas, Veraguas	do	do	do	40.00
Romance, near Canazas, Veraguas	5 to 300 foot shaft	do	do	40.00

As to the Cauca and other parts of the district, it is impossible to get information. There seems to be a desire on the part of capitalists to open mines in this section, but the revolution has impeded progress. While foreigners are not molested, as a rule, they must depend largely on native labor, and this is so very uncertain during these times as to make it almost out of the power of parties to operate.

There are many people waiting for the restoration of peace to begin work, especially in the Veraguas Province.

On account of the conditions existing here, it is impossible to give correct figures in regard to mines. The tax on this property has been greatly increased. The cost of denouncing property for mineral purposes was formerly almost nothing; now it is $10 (about $4 gold). To denounce three pertenencias by the old law cost $5 ($2); at present it costs $500 ($200) for each pertenencia.* The tax title formerly cost $10 ($4); now it is $150 ($60). The annual tax on each pertenencia was $2 (80 cents); now it is $100 ($40) for each pertenencia, whether worked or not.

For alluvial claims the annual tax for each square of 5 kilometers (3 miles) was $1 (40 cents); now it is $150 ($60). With these charges the cost of the smallest claim will amount to $250 ($100) or upwards.

H. A. GUDGER,
Consul-General.

PANAMA, *August 11, 1902.*

ECUADOR.

But one mine is being worked in this consular district at present, although there are some other claims as yet undeveloped. The name of the enterprise is the South American Development Company, usually called the "Zaruma." It is located in the district of Zaruma, Province of El Oro. All the work is in tunnels, the lowest and principal tunnel being about 2,300 feet in length, reaching a depth below the surface of 650 feet.

The rock is blue and white quartz, carrying about 10 per cent sulphides of lead, zinc, iron, and copper. Some free gold is found in particles. The ore is andesite. There are also placer mines in the Province of Esmeraldas, and information can be obtained respecting them from the Playa de Oro Mining Company, which has offices in New York City.

ROBERT B. JONES,
Vice-Consul-General.

GUAYAQUIL, *June 30, 1902.*

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* A pertenencia is a rectangle 600 meters (1,968 feet) long and 240 meters (797 feet) wide.

THE GUIANAS.

No lode mining is carried on in the district, and no regular veins of mineral are known to exist. The only mineral produced is gold, and it is obtained mostly by washing the alluvial deposits of the placers. Occasionally specimens of oxide ore are found, but no considerable paying deposit has ever been discovered. The nature of the country rock is similar in all the mining districts of the Guianas, and is composed of diabase and quartz porphyry schists. The payable quartz is in masses of laterite from decomposed diabase.

The placer gold claims are numbered, but no record of the product of each claim is kept. The annual production varies. The amount produced in British Guiana for 1901 was 114,098 ounces; in Dutch Guiana, 23,794 ounces; and in 1900 in French Guiana, 76,462 ounces.

Geo. H. Moulton,
Consul.

Demerara, *July 14, 1902.*

HONDURAS.

The Rosario mine, owned and conducted by the New York and Honduras Rosario Company, is the largest enterprise of its kind in the Republic of Honduras. The property, covering a zone 16 miles square, is situated in the Crucero, San Juan, and Pena Blanca mountains, some 21 miles northeast of the city of Tegucigalpa, the capital of the nation. In round figures, the mines are 100 miles from the Pacific coast—that is, from the Bay of Fonseca. To the north coast the distance is about double.

The working tunnels, as a whole, range in elevation from the upper 900-foot level to the lower 850-foot level. The zero level is about 5,500 feet above the sea, and the mills and town of San Juancito some 2,000 feet below the zero level. The workings to date have penetrated over 6,000 feet into the mountains, where the thickness of veins and ore is about 1 foot. Tramming is resorted to in all mines, with a principal trolley system in the main tunnel which receives the ore through chutes. There are levels every 100 feet.

The average output is 60 tons of dry ore a day, the monthly value reaching $75,000, or about $1,000,000 annually.

The chief-vein materials consist of quartz and various products of country rock, containing particles of iron, lead, and zinc sulphides, carrying silver and gold values. In certain sections, the sulphides are replaced by their oxidation products. A considerable part of the silver exists as sulphide. The gold is largely native and very finely divided. Native silver and silver chloride are occasionally found, and copper minerals occur in some places. Although the veins are usually found strong and carry sulphides in many places, they are not high-grade sulphides.

Mr. Louis S. Noble, M. E., who has recently made an exhaustive examination of these mines, does not believe there is any "mother lode," or that there is a general center from which the veins are mineralized.

A large part of the country in and about the Department of Tegucigalpa is composed of eruptive rock. In some parts of the foothills around San Juancito, sedimentary rocks consisting of sandstones, limestones, conglomerates, shales, and slates are to be found. As the elevation increases, andesite takes the place of the earlier formations. It shows variations in macroscopic appearance, according to the different conditions under which it is cooled. This eruptive rock is traversed by a large number of fissure veins, intersecting and joining at various angles, usually standing at a steep inclination.

The New York and Honduras Rosario Mining Company has, within the past few months, reorganized the management of the mines. Mr. J. H. Weddle, the new manager, expects to make such changes as will bring the producing capabilities of the mines considerably beyond the present output. New machinery will be installed and means devised to raise the entire plant to a higher standard of excellence.

I am indebted in part to the excellent report of Mr. Noble for the technical matter contained in the above summary.

ALFRED K. MOE,
Consul.

TEGUCIGALPA, *November 12, 1902.*

Consul Moe sends from Tegucigalpa, September 3, 1902, a report by W. Heyden, consular agent at Amapala, as follows:

The names of mines in the neighborhood of Amapala are the Aramecina Gold and Silver Mining Company, Limited, and the Mina El Transito. The first is located at Santa Lucia, Department of Valle; the second, at El Transito, in the same department. The depth of working in the Aramecina mine is 150 feet and the annual production is 15,000 ounces of gold. The working in the other is superficial, producing $8,400 gold from January to June, 1902. The character of ore is sulphide and oxide, and oxide, respectively.

NICARAGUA.

I submit the following statistics of the mines of Nicaragua now in operation:

Name of mine.	Location.	Class of metal.	Annual product.
			Ounces.
1. Siempre Viva	District of Prinzapulca	Gold	4,800
2. Concordia	do	do	4,800
3. Constancia	do	do	1,200
4. Colonia	do	do	3,600
5. La Luz	do	do	13,200
6. Los Angelos	do	do	
7. El Chamarro	Department of Chontales	do	192
8. Santa Fé	do	do	720
9. Socorro	do	do	960
10. Javalí	do	do	768
11. El Carmen	do	do	720
12. Santo Domingo	do	do	1,680
13. El Escandalo	do	do	1,200
14. El Portillo	do	do	1,200
15. San Gregoria	do	do	960
16. Babilonia	do	do	2,400
17. La Costarica	do	do	720
18. Esmeralda	do	do	1,920
19. El Pavón	do	do	1,440
20. California	do	do	960
21. San Antonia	do	do	720
22. Los Angeles	do	do	1,440
23. Las Mercedes	Department of New Segovia	do	1,440
24. La Yenga	do	do	
25. La Antonieta	do	do	
26. La Virgen	do	do	12,240
27. San Antonio	do	Gold and silver	
28. San Albino	do	Gold	10,080
29. El Carmelo	do	do	
30. La Pavona	do	do	
31. Americana	do	do	1,008
32. Lampara	do	do	288
33. Santo Domingo	do	do	240
34. Carolina	do	do	432
35. Santa Elena	do	do	288
36. San Juan	do	do	432
37. La Esperanza	do	do	566
38. San José	do	do	566
39. Santa Rosa	do	do	768
40. Santo Domingo	do	do	1,128
41. El Crucero	do	do	504
Total			78,000

At a valuation of $17 per ounce, the total output of 78,000 ounces would be worth $1,326,000.

Besides the above, there are seven mines in Chontales and six in Leon from which I can get no figures. Probably no work is being done except experimentally, and no gold is exported. There is also one gold mine—La Leonesa—in Matagalpa which, although having been worked continuously for over three years in tunneling and getting out ore, has not yet extracted or exported any gold.

There were also 64 mining claims registered during the past year, as follows:

Department of Leon	11
Department of Matagalpa	12
Department of Chontales	1
Department of New Segovia	40

The character of ore is sulphide. The natural rock is varied sandstone, volcanic rock, and granite. In the Department of Leon and also in Matagalpa, the gold bed is found in very small particles in a white, chalky, soft rock, and is extracted by the cyanide process only. In New Segovia and Prinzapulca, on the branches of the Rio Coco and Prinzapulca River, some placer mining is done on a small scale, and some nuggets of about 5 ounces have been found.

CHESTER DONALDSON,
MANAGUA, *June 12, 1902.* *Consul.*

PARAGUAY.

Consul J. N. Ruffin reports from Asuncion:

There exist no copper, gold, or silver mines in Paraguay. Some copper is found, but it has never been worked. I have never heard of the existence of silver in the country. Gold, I understand, exists in the district called Missiones, near San Miguel, but it has never been worked and no statistics can be obtained.

SALVADOR.

For this Republic, a report can only be made on the production of silver and gold. While a number of promising copper fields are known, almost nothing has been done as yet in their development, nor have any concentrates been exported. Owing to a general reticence on the part of local mine owners, it is impossible to state what each mine is producing, and only a total of the shipments of precious ores can be given for the years 1900 and 1901. The exportation of precious metals during 1900 was only $77,945, while last year (1901) the amount produced and exported reached the total of $192,735.23. Of this, very little is silver, as the ores of the mines now being worked carry only a small percentage of this metal. Below will be found a list of the properties now producing, with as much information as is obtainable.

DEPARTMENT OF MORAZAN.

Loma Larga.—This property is owned by the sons of ex-President Mariscal Santiago Gonzalez and consists of 10,000 acres of land, divided into four mineral zones, to wit:

Loma Larga proper—veins, Loma Larga, Guadeloupe, El Bosque, La Providencia, and San Francisco. The principal vein is Loma Larga, silver and gold, averaging $20 per ton and sometimes assaying $1,000 per ton. This vein is about 1 meter (3.28 feet) wide, silver and gold sulphides; the principal shaft is 120 meters (393.6 feet) deep and main drift about 500 meters (1,640 feet) long. About 30,000 tons of ore have been taken out of this vein. Water has now prevented further working. The San Francisco vein is about 2 meters (6.5 feet) wide and runs $10 per ton, silver and gold. The gold is a free state, easy to mill. The quartz is soft, a man extracting with a bar from 6 to 8 tons per diem. The main shaft is 70 meters (229.6 feet) deep, with about 500 meters (1,640 feet) of drifts. The Guadeloupe vein runs into the Loma Larga vein, producing as rich ore as the latter. The El Bosque vein is 2 feet wide and rich in gold. The main shaft is 60 meters (197 feet) deep, ore running as high as $60 per ton. The Providencia vein is a new discovery not yet worked.

The second zone of Loma Larga property consists of the group of mines of Palo Blanco; veins, Monte Cristo, La Margarita, Santa Barbara, La Julia, Santa Rita, Santa Elena, Mina Grande, Santa Maria, Don Adolfo, Concepcion, Culebra, Mantos del Socorro, de la Señora. The richest of these is Monte Cristo, running $30 per ton and 3 feet wide. The Santa Rita, Santa Barbara, Margarita, and Santa Maria run $15 gold per ton and are from 3 to 4 feet wide, all gold bearing, with some silver. Monte Cristo and Margarita bear sulphides and the others free gold. The Mantos del Socorro and de la Señora are most worked at present and run $12 gold per ton. According to the opinion of mining experts, there is enough ore in sight to keep a 50-ton mill running daily for twelve years. La Culebra vein, recently discovered, is very promising. Near the surface the ore is sulphide, running $30 gold per ton. The vein is some 6 feet wide and is nearly all gold, although assays show some silver.

The third zone is known as San Pedro and is composed of the following veins: San Pedro, La Fortuna, Santiago, San José, La Perla, San Antonio, La Marcial, San Emilio, and La Soledad. The principal one is San Pedro, which has been worked a great deal. It is a good class of ore, rich in metals, 3.28 feet wide, nearly all free gold. La Fortuna is 2 meters (6.5 feet) wide, running $14 gold per ton, and has been followed about 200 meters (656 feet). San Antonio vein is very wide, free gold, running $12 gold per ton. San José vein is 4 feet wide, running $18 gold per ton, the ore containing lead.

The fourth zone is called Tablon and is composed of the veins San Expedito, Santo Tomas, San Juan, Santa Alicia, Todos los Santos, and El Nance. The richest is Todos los Santos, which contains free gold, not very wide, and troublesome on account of water. El Nance has not been thoroughly explored, but a good quality of ore has been already discovered.

At the present time, 600 tons of ore are treated monthly by the cyanide process. One hundred and fifty men are employed, all natives. The capacity of the plant is 40 tons per diem. The Loma Larga properties had been abandoned for many years until the sons of General Gonzalez, aided by English capital, installed new machinery and began to develop the property.

Los Encuentros.—This mine is situated in the plantation of Entre Rios and belongs to Felipe Macay. The property consists of about 1,000 acres, highly mineralized. The principal veins are Mina Grande, Mina Nueva, Guanacaste, Quebracho, Guapinol, Dolores, and Virginia. There is a reservoir which has a capacity of 1,000 horsepower during the rainy season (between May and December) and 60 horsepower in the dry season. It is formed by a stone dam, 150 meters (492 feet) long, across the Gotera River, the water being carried through a ditch 2 meters (6.5 feet) deep, 2 meters (6.5 feet) wide, and 1,500 meters (4,920 feet) long, with a fall of 18 feet over a turbine wheel at the mill site. The vein Mina Grande runs nearly parallel with the Guapinol near the surface, and joins it at a certain depth, forming a vein about 12 meters (39.3 feet) wide, which yields about $3 gold in silver and in some parts up to 12 ounces in gold. This vein has been worked almost continually during the last one hundred and fifty years, and yet it is estimated that 100 men could work it for a long time to come. No water invades it and no pumps are required. The Quebracho, Mina Nueva, and Guanacaste veins are almost as good, and run into each other as depth is attained. The Virginia vein was discovered in the latter part of the eighteenth century by Domingo Espino, who retired to Spain after making a fortune from it. A French company tried to start work on this vein in 1857 and 1858, but had to desist on account of water. Felipe Macay partially succeeded in draining this vein and took out $50,000 in a few months, but was forced to discontinue the work because of the heavy influx of water encountered. The Encuentros property has now a cyanide plant installed to work over the old dumps, with a capacity of 40 tons per day. There are thousands of tons on the dumps, running nearly an ounce of gold to the ton. The formation is volcanic. This may be said of all the mines in this section of the

Republic. The ore is a soft quartz—sulphides near the surface, oxides in depth. About 300 men are working, nearly all natives, with 6 foreigners, who do the assaying and run the cyanide plant.

The Corazal, Barillas, Guarumel, Flamenco, and Monte Mayor are gold and silver mines and are owned by the heirs of Felipe Macay. The property consists of 7,500 acres of land, containing some seventy-five veins and claims, many of which were developed twenty years or more ago, to the extent of from 500 to 2,500 feet of shafts and drifts. The region is highly mineralized. The property commences near what is understood to be the western extremity of the mineral belt of this region. The neighboring mines of Honduras are supposedly in the same ledge. The greatest depth is about 200 feet; annual production, about $12,000 in gold and silver; character of ore, sulphides and oxides. The country rock is greenstone and porphyry—volcanic formation. Ten natives and three foreigners are now employed.

DEPARTMENT OF LA UNION.

El Tabanco.—This mine consists of thirteen veins, gold and silver, the principal ones being Ana Maria, Esquipulas, Rosalia, El Portillo, El Pochote, Paz Vieja, and Paz Nueva. The main shaft is 80 meters (262 feet) deep; drifts, 700 meters (2,296 feet) long. There are two reservoirs for power and drainage, and it has a capacity to crush 30 tons of ore per day during six months of the year; proprietor, Felipe Macay.

Salamanca mines.—Vein formation is fissure, enriched by second deposit through hot mineral solutions; depth of workings, 225 feet. The annual production can not be stated, as the property is not yet in producing condition. The ore is free milling and quartz, matrix, one-fourth of 1 per cent sulphides. The rock is of volcanic formation, greenstone and porphyry. Sixty natives and three foreigners are employed. The property is owned by the San Bartolo Gold Mining Company of New York, capitalized at $2,500,000 gold.

San Sebastian.—The depth of working is 500 feet; annual production, £80,000 ($389,320); oxide on surface and sulphide in depth. The nature of country rock is rhyolite. Seven hundred natives and twenty foreigners are employed. This property is owned and worked by the Butters Salvador Mines, Limited, an English company capitalized at £150,000 ($729,975). The ore contains gold only and is extremely rebellious. The cyanide process is used.

JOHN JENKINS,
Consul-General.

SAN SALVADOR, *November 6, 1902.*

URUGUAY.

Consul A. W. Swalm, of Montevideo, quotes a report on gold mining in Uruguay, published earlier in the year:

> Statistics have been forwarded to this office by the Department of the Interior of Uruguay in relation to the mining of gold for the past three years. The work has been carried on almost wholly by a French company, and the results are:
>
> The mines in Rivera produced 5,119 tons in 1899, yielding in gold 61.336 kilograms (139.2 pounds), the total value being $7,500.26. In 1900, 7,345 tons of mineral quartz were worked, producing 71.234 kilograms (157.04 pounds) of gold.
>
> In 1901, 6,183 tons were worked, yielding 71.946 kilograms (158.6 pounds) gold. The cyanide process is now adopted, and better results are obtained than before. The mines are all small—mostly surface work—and assays made from twelve workings range from 6.75 grams (104.15 grains) to 30.79 grams (475 grains) per ton. During 1901, 25 new applications for mining privileges were filed, all in other departments (Cerro Largo, Minas, Maldonado, Canelones, and Florida). Lack of water is complained of. The Government gets a percentage on all gold produced.
>
> The concessionnaires hope in time to strike a quartz of marvelous richness. French appliances are used exclusively. All French companies in South America deal only with France.

Silver and copper mining, adds Mr. Swalm, are not known in any commercial way.

URUGUAYAN COMMERCE WITH CUBA.

The commerce of Uruguay with Cuba is of ancient date. The island for more than one hundred years has taken tasajo, or "jerked beef," and sent in exchange caña, sugar, molasses, tobacco, cigars, and other products. For the past three years the value of caña imported has been as follows:

1899	$74,355
1900	93,127
1901	74,651

The Cuban grade of caña is deemed the best that enters the River Plata market.

The following is the value of cigars and leaf tobacco imported during the same period:

Year.	Cigars.	Tobacco.
1899	$17,809	$35,777
1900	8,461	15,890
1901	9,511	17,241

The total imports from, and exports to, Cuba for the years named were:

Year.	Imports.	Exports.
1899	$115,702	$596,829
1900	115,927	454,592
1901	99,615	463,475

The exports to Cuba are made up almost exclusively of slaughterhouse products. Tasajo, or jerked beef, to an annual average of 8,500,000 pounds, is the main article of export, and shipments for 1902 show a marked increase, caused, it is said, by advanced prices.

The steamship *Arabistan* is now making a direct voyage to Habana, taking 7,000 bales of tasajo, averaging 56 kilograms (123 pounds) each—the first time that such a heavy consignment has gone by steam direct. It is usually carried in small sailing vessels.

The jerked-beef industry is the chief outlet for the cattle product of this Republic, and the average annual output of tasajo is 55,000 tons, with a value of $5,000,000, nearly all of which is for export.

ALBERT W. SWALM,
Consul.

MONTEVIDEO, *December 18, 1902.*

SUGAR CROP IN SANTA CLARA, CUBA.

The sugar-cane-grinding season commenced about a month ago, and, deeming it of interest to commerce to have information as to the sugar crop in the Province of Santa Clara, I submit the following statement:

All the "ingenios" (sugar estates) in this province are now grinding, and a good crop is anticipated by the planters, who are much elated, as the production will be larger than last year, and the price for sugar is already considerably higher.

This province produced last year 279,659 tons, and it is estimated that this year's production will exceed the last by 35,629 tons; in fact, some of the ingenios have now more cane standing in their fields than they will be able to grind, as the grinding has to be stopped in the latter part of May, when the rainy season sets in.

There have come into Cienfuegos 101,887 bags, and about 55,000 of these were sold at 2.5 cents per pound, the rest having been stored to await better prices, which are not expected until the reciprocity treaty has been ratified. The treaty is the sole hope of the planters.

MAX J. BAEHR,
Consul.

CIENFUEGOS, *January 23, 1903.*

BRAZILIAN REVENUE BILL FOR 1903.

By a law of December 29, 1902, the President is authorized to effect the following operations:

I. To issue up to 25,000 contos (about $580,000) in treasury bills, to be redeemed before the close of the fiscal year.

II. To receive and repay moneys received from deceased and absent persons, unclaimed lottery tickets, as also from savings banks, etc. Any surplus which may result shall be applied to the amortization of internal loans and any deficit be charged to expenditure of the financial year.

III. To adopt a differential tariff in favor of one or more imported articles, in compensation for concessions to Brazilian produce, on most-favored-nation treatment, and vice versa.

* * * * * * *

V. To recover from ships using ports in which improvements are in course of execution, for account of the Union, a due of 1 to 5 reis (about 0.24 cent to 1.2 cents) per kilogram (2.2 pounds) of merchandise loaded or discharged, according to its value, destination, or origin. The proceeds of the due, which shall be proportionate to the requirements of the service, shall constitute a special fund for each port, destined exclusively to the respective improvements.

* * * * * * *

VII. To exempt from import duty—

(*a*) On petition of State or municipal government, all material imported for employment on waterworks and metallic material for construction of sewerage works or electric lighting.

(*b*) On petition to the custom inspectors, all apparatus, lamps, stoves, flatirons, and engines in which alcohol is used for motive, heating, or lighting purposes, as also all benzol imported by manufacturers of alcohol for carburetting purposes. Exemption from duties will be granted apparatus intended for exhibitions to popularize the application of alcohol to industries.

(*c*) Agricultural implements and machinery directly imported by farmers or farming associations, on payment of "expediente" due, as stipulated in the current tariff. In this class is included machinery for dairies and the machinery and metallic structure for sugar refineries, distilleries of alcohol from cane, as also barbed wire for fencing. A dispatch permitting this will be given by the Minister of Finance on presentation of a list specifying the objects to be imported and proof of employment in their respective industries.

(*d*) All animals imported for zoological gardens or for zoological and scientific exhibitions.

VIII. To lease to the highest bidder the right to work monazite sands located on lands within the jurisdiction of the Union, and to renew the contract dated December 31, 1901, on the most convenient terms, with fines in case of infraction, or to enter into agreements with the governments of the States of Bahia and Esperito Santo to settle on some common plan for working monazite sands in their territory.

* * * * * * *

XI. To liquidate accounts with Messrs. Flint & Co., of New York, by means of counter entries, and to open the necessary credits for registry of the same at the treasury.

ARTICLE 3. All vessels calling at national ports exclusively for orders shall be subject to a single fixed duty of £2 ($9.73), irrespective of their tonnage, and they shall be permitted to remain ten days under the supervision of the customs, and be allowed to receive provisions, water, coal, etc. In this tax shall be included customs and other dues of every kind to which shipping is subject. The ten days may be extended, upon just reasons by the customs inspector, for five days, but thereafter the vessel will be subject to ordinary regulations.

ART. 4. Import duties shall be recovered at the rate of 25 per cent in gold (of which 5 per cent will continue to be reserved for the guaranty fund) and 75 per cent in paper.

* * * * * * *

ART. 7. The Government shall present to Congress during the coming session a report on the working of the actual tariff and the complaints regarding the same, pointing out at the same time the modifications that may be deemed advisable.

* * * * * * *

ART. 11. Exemption from import duties stipulated in sections 21, 22, and 23 of article 2 of the tariff, and in this law, shall be subject to the following restrictions:

(*a*) Excepting such articles as have no especial application to the object intended to be served.

(*b*) Excepting such similar articles as are supplied by national industry, in accordance with the disposition of the consolidated customs code.

The clause granting exemption from duties shall be excluded from all contracts for Government supplies.

ART. 12. The duties enumerated in article 354 in the customs tariff are altered. (This item is "chairs," and the duty is increased from 100 to 300 per cent over the tariff heretofore in force.)

ART. 13. Stamped plates for canned butter imported directly by the manufacturers shall be exempt from duty.

AGRICULTURE IN HONDURAS.

Increased attention has been given to agriculture throughout Honduras during the year just past. Of all the grain raised, the native maize deserves to rank first, both in quantity of production and in value as the chief means of subsistence in the Republic. It is from this that the famous tortilla is made; millions of these soggy cakes are eaten by the natives of Central America. Last year 509,049 bushels of maize were raised, chiefly in the departments of Copan, Gracias, and Santa Barbara. Long-continued droughts in the departments of Tegucigalpa and Valle prevented good crops in those districts.

Another staple article of food is the red bean, of which about 20,587 bushels were grown. El Paraiso, Tegucigalpa, and Yoro produced most of this crop.

Wheat is beginning to receive greater attention than has heretofore been given to its cultivation, especially in the departments of Copan and Intibuca. The wheat crop of Honduras for 1902 was

15,813 bushels. During the same period, the quantity of rice produced was 38,613 quintals (4,054,365 pounds).

Next to maize in importance should be ranked the production of bananas and plantains. There are now planted with banana trees over 42,840 acres of territory, mostly in the departments of Cortes, Atlantida, and the Bay Islands. Last year 3,219,229 bunches of fruit were obtained from the trees.

Of plantain trees there are under cultivation 19,625 acres, which produce approximately 36,480,000 of the fruit. Unlike bananas, most of the plantains are consumed in Honduras, the natives cooking this fruit in a great many ways.

There are some 1,230,500 cocoanut trees, which produce annually about 14,263,300 cocoanuts; 9,790,310 of these were exported, and the valuation is placed at about $120,000 gold. The cocoanut tree is grown largely on the plantations of the Bay Islands and near Puerto Cortes and Truxillo.

Citric fruits, such as lemons, oranges, and limes, represent a fair percentage of the fruit produced, nearly 1,150,000 being exported to the United States from the port of La Ceiba alone.

The coffee crop reached 44,284 quintals (4,649,820 pounds), the product of 9,268,837 trees. These trees give, on an average, 8 ounces of beans each. Coffee plantations are found mostly in the departments of Santa Barbara, Copan, and La Paz.

The Government monopoly on tobacco being removed, the output has considerably increased. Thirteen thousand five hundred and eighty-two quintals (1,426,110 pounds) of tobacco were raised during the year. Of these, 5,531 quintals (580,755 pounds) were exported, 4,240 quintals (445,200 pounds) were used in the manufacture of cigars and cigarettes, and the rest employed generally in the country.

There are under cultivation 13,263 acres of sugar cane. From this cane is manufactured sugar, as well as aguardiente—a native rum.

Indigo is being cultivated to a considerable extent—about 9,000 acres—though far from what the country is capable of undertaking. The departments of Gracias, Intibuca, La Paz, and Valle are those in which the production is greatest. The exportation is nearly all to Salvador.

Although with irrigation a large part of the territory of Honduras might be transformed into a veritable garden, still but 4,385 manzanas (7,543 acres) have been developed by means of the artificial supply of water.

The total estimated valuation of agricultural products for the past year is 6,206,125.25 pesos ($2,482,449.10).

According to the same valuation the prices, in United States currency, of various products were:

Maize	per bushel...	$1.52
Wheat	do......	5.09
Rice	per quintal*...	2.00
Bananas	per bunch...	.20
Plantains	per 1,000...	4.00
Coffee	per quintal...	4.80
Tobacco	do......	10.00

ALFRED K. MOE,
Consul.

TEGUCIGALPA, *January 20, 1903*.

CEARA RUBBER IN NICARAGUA.

So much attention has of recent years been given to the cultivation of rubber at various points in Central America that the native rubber of the region, *Castiloa elastica*, is quite commonly regarded as the only species susceptible of cultivation in the country. In Nicaragua, the conditions exacted for its growth—hot, humid atmosphere, and a moist, though well-drained, soil—limit its artificial culture, as well as its natural growth, practically to the Atlantic coast region.

In view of the popular belief that this region is Nicaragua's rubber district par excellence, and the consequent neglect of rubber culture in other fertile portions of the country, it is interesting to note that at La Paz, in the district of Leon, where precisely opposite conditions of climate prevail to what are needed for "Central American" rubber—*i. e.*, *Castiloa elastica*—another species, indigenous to Brazil, the "Ceara" of commerce (*Manihot glaziovii*), is being successfully planted.

The climate at La Paz is hot and dry and the soil of volcanic origin, retaining moisture during drought to within a few inches of the surface. Temperature averages from 80° to over 100° F. During periods of drought, there is but little or no condensation of dew.

In February, 1902, "La Victoria" plantation was busy clearing a tract of about 300 acres from timber, vines, and underbrush. Toward the end of May, after the first rains, planting of seeds in the open was begun. In June they had all sprouted, and in November of the same year the plantation boasted several trees as tall as 12 feet. This remarkable growth seems to obviate the necessity of nursery cultivation, the only care needed being to clean and keep clear from all weeds the seedlings till they are about 20 inches in height.

A. L. M. GOTTSCHALK,
Consul.

SAN JUAN DEL NORTE, *January 27, 1903*.

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* 1 quintal = 105 pounds.

THE FORESTS OF CANADA.

The composition and present condition of the timber areas of Canada are not generally understood by the people of the United States. They are too much inclined to look upon them as one unbroken forest rather than as separate and distinct areas, and they erroneously associate with these different areas the best timbers known to have their habitat in this northern country.

A general idea of the composition of the Dominion forests may be formed by ignoring the minor belts of timber and the isolated forest reserves, and dividing the main forest lands into three great belts or divisions.

This, of course, necessitates leaving out of the report the forests of the maritime Provinces, which are extensive and valuable, covering about one-tenth of the area of those of Ontario and Quebec; but the forests of New Brunswick and Nova Scotia may be compared in a general way to those of Maine. By the division suggested, we have three great timber belts in the Dominion: the northern or spruce belt, the southern or commercial belt—both east of the Rocky Mountains—and the British Columbia belt, west of the Rocky Mountains. In point of value, for general purposes the western or British Columbia belt is far superior to either of the eastern areas mentioned, for the reason that the climate, tempered as it is by the warm waters of the Pacific Ocean, promotes a more perfect growth and development of the different species. Here is found not only the valuable red fir, or Oregon pine, generally distributed throughout the entire Province along the coast and on the mountains, but also the red cedar, the western spruce, the yellow cedar, the hemlock, the balsam fir, the western white pine, the western yellow pine, the maple, and the western oak in such quantities as to make this, perhaps, the most valuable timber belt on the North American continent. This belt extends from the forty-ninth parallel north to the sixtieth parallel, a distance of some 770 miles, and is from 200 to 300 miles wide. The best timber does not extend to the extreme north. That portion is covered with black and white spruce, and constitutes a very extensive pulp-wood range.

Dr. Dawson, in describing the red fir, or Oregon pine, says:

> The best grown specimens are found near the coast, in proximity to the waters of the many bays and inlets which indent it. Here, the tree frequently surpasses 8 feet in diameter, at a considerable height above the ground, and reaches a height of from 200 to 300 feet, forming prodigious and dark forests. The timber is used for housebuilding, shipbuilding, wharves, piles, masts, furniture, fencing, etc.

Next in importance to the Oregon pine is the red cedar. Mr. J. R. Anderson, deputy minister of agriculture for the Province, says:

> The tree is very generally distributed in Vancouver Island and on the coast of the mainland to the westward of the coast range. Scarce in the dry central plateau, it again occurs in considerable quantities in the Selkirk and gold ranges of the mountains.
>
> As in the case of the Douglas, or red, fir, the finest specimens are to be obtained in proximity to the seacoast. Here, the tree attains an immense size, an idea of which may be formed from the fact that some of the native canoes—which are all hewn out of the trunks—are 6 feet and more from the level of the gunwale to the bottom.
>
> Although second in importance, as regards its economic value, it is a more valuable wood than the Oregon pine, being used principally for interior finishing, cabinetmaking, doors, shingles, and posts.

But this region, by reason of its great distance from the markets in the East and the lack of cheap transportation, will remain comparatively in its primeval state until the eastern forests, which are more accessible, are nearly exhausted or until better transport facilities are afforded.

The northern belt is, perhaps, greater in extent than all the other timber belts and reserves of Canada combined. According to the best authority, it extends from the eastern coast of Labrador north of the fiftieth parallel in a northwesterly direction to Alaska, a distance of some 3,000 miles, with an average width of perhaps 500 miles. This vast strip of timber land, if placed upon the territory of the United States, would extend from Maine to California and from the southern shore of Lake Erie to the northern boundary line of Georgia. It is known as the spruce forest of the Dominion, the great bulk of the timber being of that species—black and white; the other important trees being larch and poplar.

Although this region has been but partially explored, it is claimed that many of the trees in the southern portion are of a lumber-producing size, but the greater portion is fit only for pulp.

When it is considered that spruce is distributed in vast quantities through all the forests of Canada, and that an almost incalculable amount will be produced in this great northern belt, it is hardly exaggeration to say that the Dominion possesses an inexhaustible supply of pulp wood.

Dr. Bell, of the geological survey of Canada, says of the forest:

> In our northern or spruce forests, a bird's-eye view of the country would show a patchy appearance, due to the fact that these different areas have been burnt over at different times.
>
> The white spruce attains its full growth in about one hundred and fifty years, and there are second-growth patches of this tree of all sizes and all ages, up to one

hundred years or more, together with some of the old forest. Spruce trees grow much more rapidly up to about thirty years than they do afterwards. The addition made between thirty and one hundred years is much slower.

In describing its area, he says:

> The area of our northern forests may be reckoned as forty-four times as great as that of England. Any one of these forty-four parts will produce wood enough to supply the ordinary demands of the present population of Canada—that is, 5,000,000 people could get what is required for mining, fuel, etc., by taking the timber from a space the size of England—and would be able to allow the other forty-three equal parts to be in reserve or used for export.

This great region, which has remained so long unexplored, is about to be brought within the reach of civilization through the railway being built from Sault Ste. Marie to Hudson Bay. This will make available at least the timber growing around the bay and along the line of the road, and may possibly provide a more accessible field of pulp wood than can be obtained in any other way for the rapidly growing industries of the "Soo."

The southern or commercial timber belt spreads over a very wide territory. It comprises that portion of Ontario and Quebec lying between the forty-fifth and fiftieth parallels of latitude and bounded on the east by the St. Lawrence River and on the west by the Great Lakes and Manitoba. Great interest centers in this great timber region, by reason of its proximity to the manufacturing centers of the United States and because it contains the most valuable timber for lumber east of the Rocky Mountains.

It is not, however, a compact and unbroken belt of first-class timber. Climatic conditions seriously interfere with the development and growth of some of the best species of timber that inhabit this region, for none of the best ones extend farther north than the watershed between Hudson Bay and the Great Lakes, approximately the fiftieth parallel of latitude, and many of them find their northern limit far south of this parallel. Besides, all timber deteriorates in value and becomes less in volume as it approaches the limit of climatic growth. The composition and extent of this timber belt can be better understood by taking a map of the Dominion and tracing its boundaries and noting the northern limit of the most valuable species. The forty-fifth parallel, which is approximately the southern limit of this region, cuts out entirely one very valuable species—the black walnut—whose northern limit of growth is the latitude of the city of Toronto, while a few miles north of this parallel is the northern limit of red cedar and white oak. A line drawn from the city of Quebec to Sault Ste. Marie will designate the northern limit of beech, while a line drawn from the northern part of New Brunswick to the north shore of Lake Superior will mark the northern boundary of sugar hard maple. Two other valuable species which have their northern limit within this belt are elm and birch.

The king of the northern forests is white pine, which has its northern limit, as have also white cedar and red pine, at this fiftieth parallel of latitude. This region is now virtually its only home in the Dominion of Canada. It was at one time supposed that it had a very extensive northern range, but Dr. Bell states that its distribution is comparatively southern, very little, if any, being found north of the fiftieth parallel, which marks the watershed between Hudson Bay and the Great Lakes. This belt would furnish an enormous supply of excellent timber but for the destruction wrought by forest fires. Dr. Bell calculates that about one-third of this territory may be considered as under a second growth up to about 10 years of age, one-third as intermediate, and one-third including trees of 100 years or more, and this applies doubtless to all the forest areas of Canada.; but as to this particular belt, which lies at the very doors of the great manufacturing establishments of the United States, and is the one foreign timber region upon which we rely, one must admit that the available supply of first-quality timber is alarmingly limited.

The Canadian forests have never been called upon to pay the enormous tribute to multiplying industries that our forests have; but they have been decimated by the speculative lumberman and the improvident settler, and ravaged by fire until those which are most accessible bear little resemblance to their primeval state.

But it is not too late for the Canadian people to preserve what is left of their great timber reserves, and, by a vigorous and judicious system of reforestation, they may be able to meet every demand for their best timber for a long time to come. They are awake to the responsibility, and are taking measures to preserve what is left and to reforest the waste places. In this connection I quote from an interesting memorandum addressed to the commissioner of Crown lands by Thomas Southworth, clerk of forestry for Ontario. He says:

> I have devoted a great deal of time and study to the question of the feasibility of restoring and preserving the growth of white pine upon lands not adapted for settlement which have been wholly or partially cleared either by lumbering operations or by fire. Until lately, such a measure has not been considered possible except at an outlay which, under existing circumstances, would preclude its adoption. Recent investigations, however, have thrown new light on the matter by dispelling the erroneous views formerly generally current, and still held by some, as to the natural process of forest reproduction. It was popularly believed that when the original pine forest was destroyed and the soil remained uncultivated, the succeeding crop of spontaneous vegetation consisted in all cases of trees of a less valuable character, such as poplar, birch, bird cherry, and jack pine, and that some natural law precluded a second growth of white pine. The circumstance

which gave color and plausibility to the theory was that in the majority of cases lumbered-over lands were subjected to the ravages of fire, frequently more than once, which swept away not merely the undergrowth but the seeds deposited in the forest soil, so that when after the lapse of years vegetation again appeared the lighter seeds, carried long distances by the wind, were the first to occupy the soil.

Careful examination of many cut-over tracts and information derived from various sources afford abundant evidence that while the result of repeated fires may be to utterly destroy the white pine so as to prevent its spontaneous reproduction, the first crop will naturally, and as a rule, be succeeded by a speedy growth of its own kind, and that, where protection from fire is afforded, these seedlings supply the vacancy left by the removal of the original forest and furnish a merchantable crop within a reasonable time. Already, there are large areas of cut and burned-over land on which young white pines are found intermixed with less valuable trees, which only require to be guarded against forest fires to yield a profitable crop long before the present virgin timber resources of Ontario are exhausted. Even after a district has been burned over, white pine or spruce will spring up where the seeds latent in the soil have not been burned, or where enough of the original trees remain to furnish seed. Near the village of Plevna, in the county of Addington, a tract of land of considerable extent has been withdrawn from settlement on account of the valuable crop of young pine timber which has grown up during the past twelve or fourteen years' immunity from fires. There are many such tracts scattered throughout the Province, unsuited for general agriculture, which will in due course contribute to the timber supply.

The problem of reforestation is greatly simplified when it is understood that all that is really required to be done in most cases to secure a certain, if somewhat tardy, restoration of the original forest growth is to allow the reproductive energy of nature to have full play, with immunity from fire. So long as it was supposed that when the first pine crop was removed the second growth was invariably of an inferior and comparatively valueless character, and that nothing short of artificial planting at enormous cost would restore the pine growth, it is not surprising that a policy of mere exploitation was pursued, by which it was sought to harvest the original crop of virgin timber as fast as the demands of the market warranted, and in a manner that would provide the greatest revenue to the Province.

Since it has been established that it is possible to profitably grow successive crops of our most valuable trees on our noncultivable lands, the question of the cheapest and most expeditious plan to pursue in this regard becomes very important. The greatest factor is of course the prevention or lessening of forest fires, and in the effort to do this many things must be considered. The withdrawal of certain lands from settlement, the degree of restriction found necessary upon the liberty now enjoyed by hunters, tourists, prospectors, trappers, and others in the Crown domain, the means of checking fires once started, and many other things must be carefully considered in enacting legislation with this aim in view.

HENRY S. CULVER,
LONDON, ONTARIO, *January 17, 1903.* *Consul.*

SALMON PRODUCTION IN BRITISH COLUMBIA.

The statistics of the salmon product of British Columbia for 1902 show a falling off of nearly 50 per cent from that of 1901, which, however, was the record year of that industry in the history of the Province. The official report for 1902 is as follows:

Locality.	Sockeyes.	All others, spring and fall.	Total.
	Cases.	*Cases.*	*Cases.*
Fraser River	393,477	33,618	327,095
Skeena River	117,677	37,198	154,875
Rivers Inlet	68,819	1,479	70,298
Naas River	20,953	2,265	23,218
Other places	30,510	19,986	60,496
Total	531,436	94,546	625,982

Total product for 1902, 625,982 cases; for 1901, 1,236,156 cases.

The product for 1902 was disposed of as follows:

	Cases.
To Great Britain	394,324
To eastern Canada	135,800
To Australia and New Zealand	10,355
Other destinations	627
Local sales	5,156
Stock on hand January 1, 1903	79,714
Total	625,982

During the past year there has been a consolidation of the canneries on the Fraser River under one management, and it is claimed that the results have been very beneficial to the trade, especially in hiring labor and in purchasing supplies. Prices have been higher, but the keen competition of the American canneries just across the line in the State of Washington has reduced profits to the minimum.

There is a general demand among the cannery men for the use of traps instead of gill nets. Each year the fishermen ask for higher prices than can be paid. The cost of the fish on the Fraser River is now practically double that paid in the early years of the canning industry in British Columbia, and the cost to the provincial canneries is said to be $1 per case more than for fish caught in traps on Puget Sound. It is claimed here that the fish taken in Puget Sound are mostly on their way to the spawning grounds in the Fraser River. It is also claimed that the salmon, on returning to those grounds from the ocean, head for the south coast of Vancouver Island, which they follow some miles and then scatter through various channels, almost exclusively through United States waters, before finally making for the Fraser River. The remedy proposed for the British Columbia situation is the establishment of traps on the south of Vancouver Island, so that the fish can be intercepted.

Heretofore, the Dominion Government has refused to allow the use of traps in Canadian waters; but such strong representations have been made at Ottawa in regard to the matter that it is universally taken for granted that traps will be allowed. The chief commissioner has publicly stated that they will secure the passage of such a measure by the legislature at the ensuing session. He announces that already 250 applications have been made for foreshore licenses on the southern and western borders of Vancouver Island, and that the tenure of the leases will be five years each. The locations will be limited to a half-mile frontage, and there will be an annual rental of $100. In the event of the foreshore being used for trap fishing, the Government will collect a tax of so much per thousand upon the fish caught. The amount of this tax has not been decided upon.

ABRAHAM E. SMITH,
Consul.

VICTORIA, *January 15, 1903.*

OPENING FOR WELL-BORING MACHINES IN CHINA.

The city of Nankin, though the southern capital of China, does not possess a waterworks system. Foreigners of various nationalities are trying to secure the franchise, but the conditions specified seem to be such that the authorities do not care to comply with them.

The season has been an unusually dry one and the question of a water supply has been agitated. Many foreigners have been compelled to hire carriers to bring water from the Yangtze for drinking purposes, but they can never be sure it is not taken from some filthy creek. When about to move into the new consulate building, I resolved, if possible, to secure a well free from surface drainage and containing pure water. With that end in view, I had made (from drawings) a "drive point," and proceeded to "drive" a well as it is often done in certain localities in the United States. At 30 feet (about 4 feet below low-water mark in the Yangtze) I found a strata of sand with an apparently inexhaustible supply of clear, pure water. The "American well," as it is called, soon attracted the attention of high officials living in the city, who one after another came to see and test it. The result of their investigations was the setting apart of an amount of money to be used in securing like wells about the city, to the number of one hundred. The fantai, a man next in rank to the viceroy, came at the viceroy's request and asked me to aid them in the work. Tests showed that the soil was adapted for the wells only here and there, and I therefore advised against the expenditure and suggested artesian wells, with storage for fire purposes, as preferable.

The advice has not yet been acted upon, but the reputation of the American well has spread until from different parts of the province, as well as from Ningpo and Tsingkiang, come requests for my aid in securing a good supply of water by pumps.

I believe there is a good opening in China for a few persons who understand sinking artesian wells and other methods of securing a good supply of pure water. Waterworks are unknown in China outside of foreign concessions.

There came to this consulate the other day, accompanied by the taotai of foreign affairs in this city, a Mr. Chang Ching (known as the "Optimus" of China—that is, the man who has passed the highest rank in the highest examinations), who said he was much interested in deep-well work, and that he had organized a company which had purchased over 1,000 acres of land with the intention of utilizing it for cotton raising and other agriculture. He wishes to know about American machines for diking, deep-well boring, and windmills. If manufacturers of these machines will send to this consulate catalogues with prices and probable freight cost of their various products from New York to Shanghai, I will see that they are put where they will do the most good. The prices required are the net ones to the purchaser.

WM. MARTIN,
Consul.

NANKIN, *January 3, 1903.*

GOLD MINING IN THE PRIMORSKI REGION, SIBERIA.

The Ministry of Agriculture and Domains has just published the following report on the results of the investigations relating to gold mining, made in the Primorski region in 1898 and 1899:

> The geographical position is favorable and the climate is soft; the absence of frigidity and the easy access to water ways of communications promise favorable results. Gold mining in the Primorski region is divided into two parts—the northern, on the Amur River and the Okhotsk Sea, and the southern, on several little rivers along the South Ussuri district and the island of Askold. Gold mining has increased in the former since the construction of the Ussuri and Transbaikal lines of the Siberian Railroad. The large mining companies (which produced 62.4 per cent of the total gold mined) have representatives in large trading towns, who buy materials, keep an eye on the market, and make contracts with tradesmen. The

small enterprises have no agents and must pay retail prices. The large companies enjoy a credit from banks, and can receive loans at 8 per cent.

The Russian-Chinese Bank began to help the small companies in 1897 by undertaking to deliver gold to the Government laboratory and advancing money to the amount of 3 rubles ($1.55) per zolotnik (2.4 drams). In 1899, it issued 60,500 rubles ($31,158) at 9 per cent per year.

Trial excavations are made at a distance of 1 verst (0.663 mile) apart, with additional pits to ascertain if the gold veins do not incline sideways. When making final calculations, the whole area is divided into triangular lots, formed by the lines of pits, and when the stock of gold is approximately studied, draining canals are dug and the necessary buildings are constructed.

The work begins with removing the turf and upper soil. Generally, this work is done by hand digging, horse cars carrying the turf away; but recently they have begun to wash the turf away by irrigation. The gold sand is dug out with pickaxes and spades, a workman being paid from 1.19 to 1.80 rubles (61.2 to 92.7 cents) a day. The washing is effected by barrel engines moved by locomobiles.

The richest gold layers in the South Ussuri region have been worked by the ancient Chinese processes. In addition to the gold-mining industry in this region, there are other natural riches, viz, forests, fisheries, and coal, iron, and lead mines, which do not need so large an investment of capital and are not connected with such risks as the searching and working of gold mines. The lack of technical knowledge in the gold-mining branch is the principal reason why its development is so slow.

The most important enterprises in the Ussuri land are the mines "Osnovatelny," belonging to Lieutenant Molchansky, who worked them by contract during 1897 and 1898, and suspended the work in 1899; the mine "Askold" (on the island of the same name), where vein gold is being extracted by a plant for working quartz; and a mine on the River Siao-Sooszi-he.

The total quantity of gold mined in the Primorski region, according to statistics, was 1,104 poods 2 pounds (39,904.7 pounds), containing an average of 1 zolotnik (2.4 drams) in 100 poods (3,611 pounds) of sand. This amount is less than the product of the adjacent region of the Amur, which can be explained by the novelty of the business. The chief gold-mining works in the province of Primorski were established during the last ten years, and a great number of gold veins of this region are not yet worked and not even declared.

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *December 31, 1902.*

MINING IN RUSSIAN CHINA.

The bourse committee at Vladivostock has addressed, through the governor, a petition to the imperial authorities at St. Petersburg, praying for the removal or modification of the existing prohibitory law against all foreign industrial enterprises, especially for mining, in the coast districts of Russian China. The statute in question, promulgated June 17, 1901, prohibits all foreign mining operations and other industrial enterprises within about 66 miles of the coast line. The petitioners state that, owing to the lack of native capital and enterprise, there is no immediate prospect of a rational development of the mineral wealth and other industrial resources of that region. It is declared that, as at present administered, this prohibitive law is partial and unsatisfactory in effect. Exceptions are made in granting concessions without any comprehensible bases. American, French, and Belgian prospectors, representing wealthy syndicates, seeking mining concessions on the Ussuri, in Sakhalin, have recently arrived. A French syndicate, which applied for a concession to work extensive coal fields in the neighborhood of Vladivostock, was refused, but the concession has been granted to an English company trading under the Russian flag. This British enterprise will shortly, it is expected, be in a position to furnish both Vladivostock and the Ussuri Railway with plenty of good and cheap coal. Numerous foreign syndicates have sought concessions for the development of the silver and lead deposits lately discovered in the Ussuri region; but they were met by the law that prohibits the working of all kinds of mineral ore by foreigners. What the country requires, the petitioners urge, is, for a number of years at least, complete freedom of operations for foreign capitalists, engineers, practical miners, and, above all, foreign brains and energy. This petition states that the mining affairs in all parts of far eastern Russia are subordinate to the mining commission at Irkutsk, thousands of miles distant and necessarily ignorant of the local conditions in the extreme limits of its official jurisdiction. The petition begs that this be forthwith remedied.

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *January 26, 1903.*

MINING INDUSTRY IN TURKESTAN.

In September last, work was begun on the copper foundry of Nazarov & Co., in Turkestan, at the foot of the Supetau Mountains, on the shore of the River Syr-Daria. The mineral riches of Turkestan are diverse. In addition to gold, silver, iron, copper, and coal mines, there are zinc, manganese, stibium, ozocerite, naphtha, crystalic salt, Glauber's salt, fire clay, etc. The discovery of these resources was recent, and want of capital prevented their development until the completion of the Trans-Caspian Railroad. The discovery of copper veins in 1892 in the Fergan region, along the River Syr-Daria, and in the Namangan and Cocand districts, resulted in the organization of a stock company with Belgian capital to work them. The veins consist of large strata of sandstone, impregnated by copper acids. The layers of copper-ore sandstone begin in the west, at the foot of the Supetau Mountains, and extend to the east about

12 miles. They contain an average of 1 to 5 per cent of copper, although there are spots which yield from 10 to 40 per cent. At present, only virgin ore is worked, the product amounting to 700 poods (25,278 pounds) per day; but new machinery is being added, and it is expected that the output will be increased to 3,000 poods (108,336 pounds) per day. It is proposed to work the oxidated ores by chemical process.

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *December 30, 1902.*

THE COMMERCIAL SCHOOL AT TIFLIS.

In compliance with a request from a former university president in the United States for information in regard to the commercial school at Tiflis, I put myself into communication with the director of the school, and with the German consul at Tiflis, who very kindly sent me the following letters. The German consul said:

The commercial school at Tiflis was founded by the merchants of this city and formally opened on the 17th of September, 1900. The school building cost $107,940. The expenses of the institution are paid by tuition and by an annual subsidy of $5,140 granted by the merchants of Tiflis. When absolutely necessary, the State also gives some support. The State pays the teachers' pensions, which are earned in Caucasia after twenty years' active service. Throughout the rest of the Russian Empire, such pensions are granted after twenty-five years' teaching.

The director of the Tiflis commercial school wrote:

Our commercial school stands immediately under the administration of the Russian Minister of Finance. There are three elementary classes and five general classes, as well as two classes for special study. Thus far, only the three elementary and three of the five general classes have been organized. A new class will be organized each year until all are complete. The first graduating class will go out in 1907. There are 694 students at present, composed of the following nationalities:

Nationality.	Number.	Nationality.	Number.
Russians	48	Greeks	5
Georgians	89	Jews	24
Armenians	480	Tartars	23
Poles	2	Persians	5
Slovaks	1	Assyrians	1
Germans	10	Ossedes	6

CONDITION OF ADMISSION.

Children between the ages of 7 and 9 years are admitted without examination. Children coming from the public schools are usually admitted to the first division of the general class.

CURRICULUM.

Russian.
German.
French.
Commercial arithmetic.
Geometry.
Geography.
History of commerce.
Natural sciences.
Chemistry.
Materials of commerce.
Political economy.
Religion.
Russian commercial correspondence.
German commercial correspondence.
French commercial correspondence.
Algebra.
Trigonometry.
Commercial geography.
History.
Physics.
Physiology.
Bookkeeping.
Commercial law.
Elementary branches.

In addition to this course some of the languages of Caucasia are taught.

One should not lose sight of the fact that the 10,000,000 inhabitants of Caucasia are made up of the remnants of many ancient nomadic tribes. According to Russian statistics, only 2,500,000 are Russians, 1,000,000 are Armenians, 1,500,000 Tartars and Georgians, while the rest are principally Mohammedan tribes. It is claimed that there are 30 different languages and dialects spoken in Caucasia. Tiflis is an Asiatic city. It is connected by overland caravan routes with Persia, Turkestan, Afghanistan, India, and even China. Camel trains from Damascus, Bagdad, and Arabia reach the city from the south. It is the object of the Tiflis commercial school to draw its recruits from all these adjoining countries; to infuse into them Russian customs and business methods, at the same time giving them instruction in their own language, religion, and traditions. Such methods will have a powerful effect upon the destinies of southern Asia. It is the hope of those personally interested in the Tiflis commercial school that by the time it is completely established the number of pupils will have increased to 1,200.

From a German gentleman of Mittweida, Saxony, who visited Tiflis in August, 1902, and from other sources, I have learned the following additional facts:

> The teachers are regarded as being in the service of the State, enjoy certain rights as State officers, wear uniforms, and are appointed by the Minister of Finance. The school is divided into two sections, namely, a preparatory school and an advanced commercial school. In all Russian commercial schools the preparatory department is divided into four classes and the advanced school into seven classes. In Tiflis the preparatory school is complete, but in the advanced school only two of the seven classes have thus far been established. This is owing to the fact that the school was first opened in 1900. The remaining five classes in the advanced school will therefore be organized as soon as the demands for the same are urgent. One year is devoted to every class, making in all four years for the preparatory and seven years for the advanced courses.
>
> Apprentices and others who wish to attend Russian commercial schools have the option of preparing themselves in whatever school they choose. For example,

pupils may be admitted to the advanced section of the Tiflis commercial school without having attended the preparatory department of this or any other commercial school. Such preparation may be obtained in any of the public schools.

There are 48 teachers employed at present in the Tiflis commercial school. A large number of these, however, are also employed in other schools of the city. A definite salary is not paid these teachers; only the director and inspector receive fixed salaries. The former receives 4,200 rubles ($2,158.80) and the latter 3,200 rubles ($1,644.80) per annum. Each class teacher receives on an average 720 rubles ($370.08) and has the privilege of giving as many extra hours as the time at his disposal will permit. In the preparatory department each of these teachers receives 50 rubles ($25.70) for every extra course of two to three hours a week during a semester. Every class teacher is guaranteed a sufficient number of extra hours in order to make good any deficiency in salary. It might be stated here that the school year is divided into two half years, or semesters. The average income of each teacher is thereby increased so that it amounts to about 2,000 rubles ($1,028) annually.

There is one subject taught in the above-mentioned curriculum which is especially worthy of note, namely, materials of commerce. In the Tiflis school this subject is divided into four parts and taught with special reference to the commercial conditions existing in Caucasia. These divisions are as follows: Agriculture, stock raising, mineralogy, and manufacture.

Transcaucasia grows almost every known grain in the world. The forests of the Caucasian Mountain Range produce saffron, madder, oak, walnut, and boxwood lumber, while apples, pears, and grapes grow wild in these forests to such an extent that they are exported in large quantities. The wine of Caucasia is also exported, and the cotton of the country is second only to that of Egypt. Stock raising is of more importance to the welfare of the inhabitants than agriculture. The animal products of the country are horses, cattle, sheep, camels, honey, and silk. The fishing industry is well developed and furnishes a livelihood to many thousand people. Caucasia is rich in silver, iron, copper, coal, salt, and especially manganese. The petroleum or naphtha wells of Baku produce 8,000,000 tons, or fully 50 per cent of the world's annual supply. The industries of Caucasia are in their infancy. The articles of manufacture thus far are firearms, woven goods, and carpets.

I have mentioned the resources of Caucasia simply to show what subjects are especially taught in connection with materials of commerce in the commercial school. Samples of plants and minerals have been collected which are used by the teachers as illustrations. No student leaves the school without acquiring a thorough knowledge of all the products of Caucasia and adjoining countries, a knowledge which will inevitably be of great service to him in after years, either as a merchant or manufacturer.

Those who graduate from the Tiflis commercial school may be admitted to any of the technical universities without further examination and (with the exception of the so-called "classical four-faculty universities") to any other institution of learning in the Empire. The student is also fitted to obtain Government employment and has the further advantage of having to serve only one year in the army. The student who is fortunate enough to win the gold-medal prize—only one being granted each semester—secures pecuniary benefits and receives a special title which raises him for life to a rank about halfway between that of citizen and noble. One of the advantages thus acquired is exemption from taxation.

In Caucasia the pensions of the teachers are the same as those all over the Russian Empire. In Tiflis the pensions are better on account of the higher cost of living. These pensions are regulated in the following manner: Each teacher, as well as the director and inspector, pays into the treasury every year 2 per cent of his salary. After twenty years of service, he receives a pension of 900 rubles ($462.60) annually. The director receives a pension of 1,600 rubles ($822.40) and the inspector 1,200 rubles ($616.80) annually. The Government makes a distinction in regard to pensions between those who have especially trained themselves for commercial school work and those who have not. Those teachers who are not graduates of high-class schools receive a pension of only 600 rubles ($308.40) annually.

The school tax in the first class of the preparatory department is 80 rubles ($41.12) for each student annually. In the other three classes of the preparatory department the tuition is 100 rubles ($51.40). In all the classes of the advanced department the tuition is 120 rubles ($61.68) annually.

Commercial schools in Russia are founded by the State wherever they are thought to be necessary. The initiative is always taken by commercial organizations—that is, chambers of commerce and similar bodies—the members of which have previously appointed a committee which has thoroughly examined the question. After definite information has been obtained in regard to the demand for a school, the number of prospective students, financial contributions, etc., the Government is petitioned to grant a license and to make good any annual deficit which may occur. The Government, however, never goes beyond granting 25 per cent of the actual expenses of any commercial school. The funds for maintaining these schools must come, in the first instance, from the merchants and commercial bodies in the city where the school is located. Russian commercial schools are State institutions and are under the control of the Minister of Finance. The Empire is divided into districts, each of which has an inspector, who works hand in hand with the director of each school. There are 43 commercial schools in the Russian Empire under the control of the State, and 20 private schools, similarly organized, with State supervision.

The commercial school at Tiflis is a very good example of the schools in the Russian Empire. Russian merchants and manufacturers are alive to the fact that these institutions will be of incalculable value in the development of the enormous material resources of their country. The Russian chambers of commerce are following the example of Germany,* and are establishing these useful institutions wherever the needs and resources of a community will admit of it. The signs of the times are distinctly in favor of commercial education, and the extension of these schools throughout Russia will give many object lessons to other nations which are interested in this kind of education.

ERNEST L. HARRIS,
Commercial Agent.

EIBENSTOCK, *January 9, 1903.*

AUSTRO-HUNGARIAN COMMERCE IN 1902.

Preliminary statistics published to-day show that the total exports during 1902 from Austria-Hungary amounted to $382,500,000, which is $5,400,000 more than the value of the exports for 1901. The total imports into Austria-Hungary for the year in question amounted to $344,760,000, being $14,240,000 more than for the previous twelve months. A balance is therefore in favor of the Monarchy to the amount of $37,740,000; but compared with the balance of 1901, the figures under consideration show a decrease of $8,840,000. This falling off is to be accounted for in the striking rise in imports. Of especial importance is the increase of imported raw materials for manufacturing purposes. Cotton leads the list with a gain of $4,820,000, and wool and worsteds show an advance of $4,560,000. The rise in exports is due particularly to the sale of cattle abroad, which was $6,200,000 more in value than in 1901. The export of grain has gained by $680,000. Among manufactured articles, the value of cotton yarns increased by $616,000; woolen goods, by $540,000; silk goods, by $480,000; and clothing, by $1,180,000. The decrease is marked in the export of sugar, on account of the bad state of the market. Altogether, 680,000 tons were exported in 1902 against 700,000 tons in 1901.

CARL BAILEY HURST,
Consul-General.

VIENNA, *January 22, 1903.*

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* See ADVANCE SHEETS No. 1373.

GERMAN IMPORT OF TROPICAL FRUIT.

The greater part of central Europe gets its supplies of tropical fruit by way of Hamburg. In the south the chief competitor is Trieste, the leading market on the Mediterranean. In the west the Spanish fruit is brought to the Paris market by rail. To supply the country along the Rhine there is considerable rivalry between Hamburg on the one hand and Rotterdam, Amsterdam, and Antwerp on the other. The fruit trade with Norway, Sweden, and Denmark is shared by Hamburg with the English dealers, but the German city controls the Russian markets by way of the Baltic. Altogether, Hamburg imported during 1901 about 47,000 tons of oranges and 10,000 tons of lemons, not to mention other kinds of fruit. During the same period only 879 tons of oranges and 120 tons of lemons were landed at Bremen.

As Bremen can offer the same advantages for handling the fruit business as Hamburg can, a movement was set on foot here about a year ago with a view of making an effort to get a large share of this trade. The Bremen senate made an appropriation for the purpose of constructing a storage house in the free port, which is provided with excellent heating and ventilating apparatus. In addition, the senate abolished the usual official fee on all auctions of fruit, and materially reduced the water-way or river tax on all vessels engaged in this traffic.

The fruits imported are mainly oranges, lemons, apples, grapes, bananas, and pineapples; vegetables, such as potatoes, onions, and tomatoes, are also brought in. The imports come from Sicily and Spain, with which countries Bremen has excellent and regular steamer connections.

The first shipments of southern fruit began to arrive last November, and many tons have been imported during the last months. They are sold at auction, and thus far the sales have been very successful, all the fruit having been rapidly disposed of at satisfactory prices. The fruit packer in Italy and Spain buys oranges while the crop is still on the trees, has them picked, sorted in the storehouses according to size and quality, packed, and consigned to a broker in some fruit market. Upon arrival at their destination, the goods are taken to the storage house, where the consignee divides the entire shipment into lots of 20 and 30 cases, one of which is opened for inspection and sampling. As soon as convenient, the fruit is sold at auction to the highest bidder and the proceeds are credited to the shipper, after deducting expenses for freight and selling. In most cases the buyers are permitted to leave the lots purchased in storage for a limited time, free of charge, in order to resell or repack for further transportation.

Though this promising fruit market is not so readily accessible to fruit growers on the western continent as it is to their competitors in Europe, American dealers would do well to carefully examine the new arrangements at Bremen and the opportunities they offer. About 4,000 barrels of American apples were sold at the four auctions recently held here, which, of course, is but a small beginning. However, I see no reason why, in the course of time, American fruit of all kinds should not be unloaded at this new storage house at Bremen and disposed of at profitable prices. The Germans are not great fruit eaters, when compared with other nations. While in England the annual consumption of southern fruit amounts to 15 pounds per head, it averages not quite 3 pounds per head in Germany; but this simply shows that there is great room for improvement, and it is not unreasonable to hope for a steady increase of the demand for fruit in this market.

HENRY W. DIEDERICH,
Consul.

BREMEN, *January 28, 1903.*

GERMAN SUGAR BILL.

The Department has received from Ambassador Tower, of Berlin, under date of January 23, 1903, notice that the German sugar bill was promulgated January 12, 1903. This law, which was passed in connection with the adoption by Germany of the Brussels sugar convention, provides:

ARTICLE 1. The second and third parts (sections 65 to 79) of the sugar-tax law of May 27, 1896, are repealed.

ART. 2. Paragraphs 2 and 3 of the law are changed as follows:

Paragraph 2. The sugar tax amounts to 14 marks ($3.33) per 100 kilograms (220.4 pounds) net weight.

Paragraph 3. The sugar tax is to be paid as soon as the sugar passes out of the customs control into free circulation. The proprietors of manufactories from which the sugar enters into free circulation are responsible for the payment. The sugar is security for the amount of the tax without regard to the rights of a third party. In the same manner goods containing sugar, covered by paragraph 6, No. 1, are held for the tax.

The sugar tax is to be paid by the proprietor of the sugar manufactory in exchange for guaranties for the period of six months. The guaranty can be provided by the deposit of guaranteed bills for their current value, but not above their nominal value, or through bills of exchange and similar securities, of whose reliability the supreme finance authority of the land must have proof, or through first-class mortgage upon the sugar factories up to the half of their value, ascertained by official experts, or through the pledging of the sugar on hand for two-thirds of the market value under the tax control (with official seal).

ART. 3. To paragraph 80 of the law is to be added: The entrance duty for sugar, for which no bounty has been granted in the countries of origin, is, during the continuance of the agreement concluded in Brussels March 5, 1902, raised to the highest sum which is conceded according to the agreement.

The origin of the sugar must be stated on import.

ART. 4. Paragraph 81 of the law is repealed.

ART. 5. Sugar which has been received in a warehouse before this law goes into effect, if transferred to free circulation or to a sugar manufactory after the period mentioned, must repay the export bounty.

ART. 6. This law goes in force simultaneously with the agreement of March 5, 1902, concluded in Brussels between the Empire and a number of other countries, viz, September 1, 1903.

GERMAN EXPORTS TO THE UNITED STATES.

Consul-General F. H. Mason, of Berlin, transmits the following statement showing the declared values of exports to the United States from Germany during the calendar years 1901 and 1902, respectively:

City.	1901.	1902.	Increase.	Decrease.
Aix la Chapelle	$1,209,659.54	$823,843.73		$385,815.81
Annaberg	1,848,020.30	2,208,748.91	$360,728.61	
Bamberg	743,028.82	996,242.42	253,213.60	
Barmen	5,019,070.74	7,230,890.17	2,211,819.43	
Berlin	7,558,790.05	8,760,219.54	1,201,429.49	
Bremen	3,433,934.36	2,786,487.85		647,446.51
Breslau	1,239,380.84	1,329,965.50	90,584.66	
Brunswick	2,182,181.29	2,305,980.89	123,979.60	
Chemnitz	5,531,273.82	7,523,744.28	1,992,470.46	
Cologne	2,311,789.71	3,873,668.20	1,561,878.49	
Coburg	3,564,186.00	3,479,770.00		84,416.00
Crefeld	2,668,633.93	2,787,922.26	119,288.33	
Dresden	1,374,074.01	1,595,465.14	221,391.03	
Düsseldorf	1,277,555.24	4,080,356.66	2,808,801.42	
Frankfort	7,189,541.20	7,904,681.63	805,140.43	
Freiburg	1,230,941.31	1,170,213.92		60,727.39
Glauchau	682,514.14	636,331.82		46,182.82
Hamburg	11,590,378.76	12,237,502.11	647,123.36	
Hanover	729,907.28	1,121,650.83	391,745.55	
Kehl	1,894,895.25	2,843,997.32	949,102.07	
Leipzig	5,942,799.86	7,921,480.42	1,978,690.56	
Magdeburg	7,962,023.65	6,026,502.52		1,935,521.13
Mannheim	4,258,734.59	5,079,872.99	821,138.40	
Mainz	2,134,945.30	2,448,343.64	313,398.34	
Munich	793,535.48	966,847.57	173,312.09	
Nuremberg	3,911,515.62	4,348,835.52	437,319.90	
Plauen	3,050,428.79	4,111,508.94	1,061,080.15	
Solingen	1,442,753.34	1,595,315.91	152,522.57	
Stettin	2,705,159.82	2,546,950.71		158,209.11
Stuttgart	1,072,532.45	1,258,075.38	185,542.93	
Weimar	1,073,416.02	1,186,933.61	113,517.59	
Zittau	989,090.22	1,217,152.06	228,131.84	
Total	99,616,731.73	114,495,502.45	14,878,770.72	

Total exports from Germany during the last five calendar years.

1898	$83,191,015.27
1899	90,916,778.17
1900	103,184,654.41
1901	99,616,731.73
1902	114,495,502.45

SWISS FACTORIES IN GERMANY.

It is reported from Basel that a number of manufacturers of watches are preparing to emigrate to Alsace, Germany. In the town of Hegenheim (a small place in Alsace, about 3 miles from Basel), two watch manufacturers have bought the sites for factories, and building is to commence at once; the works are expected to be in running order this fall. In St. Ludwig—a suburb of Basel, but on German territory—three watch manufacturers of Neuenburg have bought lots, where large establishments are to be erected; in Hueningen, a branch of a firm in Chaux de Fonds has been working for several years.

This tendency to move from their own country to Germany, on the part of the manufacturers of Swiss goods, is not new. Four large ribbon manufacturers, originally at Basel, have for years had branches with a number of workmen at St. Ludwig; two silk factories of Zurich have important establishments at Hueningen; in Loerrach, and in a number of places in the valley of the Wiesen, Basel manufacturers have branches. This erection of branch factories on German territory has the advantage of saving tariff fees and of employing labor at much cheaper rates than it can be found in Switzerland.

W. BARDEL,
Consul.

BAMBERG, *February 2, 1903.*

NEW COTTON EXCHANGE AT BREMEN.

Two things occurred in Bremen during the year just ended that were of interest to our people engaged in growing and selling cotton. One was the opening of the Bremen Cotton Exchange and the other the publication of a book entitled Die Baumwolle (Cotton).

Next to Liverpool, Bremen is to-day the leading cotton market for this continent. Before the organization of the cotton exchange in 1872, German merchants had been getting their product chiefly from Havre and Liverpool, very little being imported direct. To become independent of British ports, it was necessary to get the patronage of the inland spinners. This proved no easy task. Not until a decade had passed did the Bremen exchange cease to be a local institution and acquire a standing of national importance; but ever since the development has been phenomenal. While the importation of cotton in the year 1870 amounted to only 157,689 bales, it ran up to 397,998 bales in the year 1880. Ten years later there were 812,538 bales, and the year 1900 showed the enormous figure of 1,567,045 bales.

In showing the growth of these importations, the following table will prove of interest:

Year.	Bales.	Year.	Bales.
1891	872,856	1897	1,402,048
1892	803,405	1898	1,765,353
1893	862,964	1899	1,382,179
1894	1,025,221	1900	1,567,045
1895	1,112,434	1901	1,603,480
1896	1,123,206	1902	1,726,435

A proportion of this cotton is being continually classified and arbitrated on. The following figures are officially reported for the past four years:

Amount of cotton arbitrated on.

Year.	Cotton.		Total.
	American.	Indian.	
	Bales.	*Bales.*	*Bales.*
1899	1,274,697	156,653	1,431,350
1900	1,145,022	82,912	1,227,934
1901	1,251,945	189,536	1,441,481
1902	1,107,441	187,995	1,295,441

The next table shows that fully two-thirds of the American cotton is arbitrated on upon its arrival here, before it passes into the hands of buyers:

Year.	Imported.	Arbitrated.
	Bales.	*Bales.*
1899	1,366,899	1,274,697
1900	1,603,880	1,145,022
1901	1,579,527	1,251,945
1902	1,704,886	1,107,441

The new cotton exchange is said to be not only the most imposing structure of this nature in the world, but also the most complete in the appointments necessary for carrying on the business of buying and selling cotton and supplying the leading merchants and brokers with office and sample rooms.

To celebrate its opening, the members of the exchange published a handsome volume (745 pages) entitled Die Baumwolle, which is probably the most complete work on the subject of cotton. It was compiled by Professor Oppel, of Bremen, who devoted years of the most careful study to this subject, extending his researches to every cotton-producing country.

HENRY W. DIEDERICH,
Consul.

BREMEN, *January 11, 1903.*

THE NORTH SEA FISHERIES.

The exploitation of the teeming resources of the North Sea contributes so greatly to the prosperity of the Humber ports of Hull and Grimsby that a brief history of its development and a description of the changes which the industry has undergone, especially during the past twenty years, can not fail to be of interest. From the earliest times, the fisheries of the east coast of Great Britain have engaged the energies of large numbers of people, both men and women, and legislative efforts have from time to time been made to stimulate the industry. In Scotland, especially, was this the case a century ago. Bounties were given by Parliament with, however, unsatisfactory results, as is pointed out in Adam Smith's Wealth of Nations. After the failure of repeated experiments of this kind, Parliament resolved to give the fisheries a free hand, and since that time the prosecution of the industry by the hardy Scotch fishermen prospered so greatly that, down to comparatively recent times, it ranked as the most lucrative and important branch of employment. Inasmuch as the Humber fishing industry is only indirectly related to the herring fishery, which forms the larger part of the Scottish fishing industry, this part of the subject has only been slightly dealt with in the present report, although liberal use has been made of the wealth of facts stored in the pages of painstaking Scottish authorities, notably Professor M'Intosh, whose work, The Resources of the Sea, is a standard authority upon the scientific aspect of the question.

ADVENT OF THE STEAM TRAWLER.

Up to the eighties, the methods of fishing differed little from those pursued in primitive times. The application of steam to the boats was an idea which had not been put into operation, probably because the fishermen are of all classes in the country the most conservative in their habits. In 1879, some steam tugs employed in the Tyne and Wear were thrown partially idle, owing to the prevailing depression in the shipping trade, and, in order to augment their earnings, the owners resolved to trawl in the inshore waters during periods of enforced leisure from employment of a more profitable kind. The result was that these improvised steam trawlers competed very successfully with the sailing vessels, so much so that the crews of the older vessels fiercely resented the newcomers. However, it was soon discovered that the tugs, being mostly of the paddle type, could not proceed far to sea; yet the remunerative nature of steam fishing had been demonstrated and capital was quickly forthcoming in order to build screw trawlers specially suited to the industry. At first, wood was the only material employed in construction, but the advantages of iron were early recognized, and later steel came into preference. The catching power of a modern steam trawler is estimated by practical men as equal to that of at least eight or ten of the old sailing trawlers which, only twenty years ago, carried on fleeting operations in the North Sea. So striking an increase in the capacity of the boats could not fail to exercise an enormous influence upon the trade. In 1883, there sailed from the ports of Hull and Grimsby less than 20 steam fishing vessels and about 1,000 sailing trawlers, smacks, yawls, and luggers. Only four sailing vessels survive to preserve recollections of a past within the memory of the great majority of those interested in the trade. Lowestoft and Yarmouth made an effort to stem the tide of innovation by building sailing vessels of a more modern type; but these, too, have been disposed of and scattered among various continental ports where the old methods are still adhered to.

Official statistics bear out the effects of these revolutionary changes in the industry in a very striking fashion. In the first place, we see, as might be expected, that in consequence of the enormously increased efficiency of the vessels the total number of craft has declined. Taking England and Wales alone, the number of first-class boats—boats of 15 tons and upward—has fallen off from 3,809 in the year 1882 to 3,176 in 1900; but the number of men and boys constantly employed has only shrunk from 32,503 in 1890 to 31,589 in 1900. In Scotland, where the line-fishing industry at the small coast villages, so picturesquely described by Sir Walter Scott, has felt the pressure of the new competition acutely, the effects have been much more marked, the number of men and boys constantly employed having fallen off within the course of the last decade from 34,319 to 27,288, while the number occasionally employed has dropped from 20,829 to 10,288, or more than one-half. In this fact may be seen the explanation of the outbreaks of feeling which the trawlers sometimes excite in northern waters, and also the continual agitation, of which more will be said at a later stage of this report, in favor of the legislative restriction of trawling in inshore waters.

EFFECT OF STEAM TRAWLING ON THE GENERAL SUPPLY.

But while the enhanced efficiency of machinery has undoubtedly displaced many fishermen in the market, the effect has, broadly speaking, been for the general good. The English public in the great inland centers enjoys a constant and plentiful supply of all kinds of fish, and the quantities landed are steadily increasing, as the following table, which is confined exclusively to the English ports engaged in the North Sea fisheries, clearly illustrates:

Ports.	1891.	1893.	1895.	1897.	1900.
	Cwts.	*Cwts.*	*Cwts.*	*Cwts.*	*Cwts.*
Hull, Grimsby, and Boston	1,565,165	1,776,338	2,193,998	2,399,706	2,866,172
North Shields, Sunderland, Hartlepool, Scarborough, Yarmouth, Lowestoft, and Ramsgate	570,818	625,283	623,743	508,440	568,757

The fishes included in this table are cod, haddock, hake, ling, soles, turbot, plaice, and halibut, all of which are caught by trawls or lines. Another noteworthy fact here brought into strong relief is the rapid growth of the trade at the ports engaged in fishing in the distant waters, such as Iceland, the Faroe Islands, etc., as contrasted with the stagnation of ports like Scarborough, where no attempt has been made to embark upon the new enterprise, which, until the last year or so, has enabled capitalists to amass profits at an unprecedented rate.

ORIGIN OF THE HULL FISHING TRADE.

It is a curious fact that the enormous fishing trade of Hull, which dates from 1844, was originated by pure chance. Mr. W. A. Ansell, to whom I am indebted for the narrative, told the National Fisheries Conference in 1883 that one of the Ramsgate boats in prosecuting her searches for fish was, by adverse winds, blown farther north than usual, but, determined to make a try, they shot their trawl in what is now well known as the Silver Pits, and their venture was so well rewarded that they drew up their nets bulging with sole. Very soon this golden haul became noised abroad, and other boats followed and obtained similar results. Hull was found to be a convenient port of resort and gradually became the center of the North Sea fishery, until it in time had to yield preeminence to Grimsby, which possessed the advantage of being 20 miles nearer the sea.

The Silver Pits no longer yield teeming harvests of sole, not perhaps, as the fishermen believe, through the havoc wrought by trawlers, but through the migration of fish elsewhere, possibly to return to their old resort again. However that may be, it is certain that whereas it was not uncommon for a trawler to get there 40 to 60 pots (1 to 1½ tons) per night fetching $1.45 to $1.95 per pot, soles now fetch as high as from $12.16 to $29.20 per pot, the price having risen as the takes diminished. Similar migrations are reported about the Heligoland fisheries and off the Texel.

USE OF ICE ON TRAWLERS.

The development of the trade recorded in the foregoing statistics may be traced to the use of ice, as is illustrated by the history of the Humber fishing industry at the ports of Hull and Grimsby:

Port of Hull.

Year.	Vessels.	Registered tons.	Value.	
	Number.			
1845	21	570	£6,425	$31,267
1873	330	19,800	247,500	1,204,459
1882	417	29,233	555,000	2,700,908

Grimsby in 1845 was not used as a fishing port, but thirteen years later—1858—a few of the Hull smack owners were induced to migrate thither, and others followed; but the fleets being too small in number to work the trade successfully, ice was introduced, by which means each smack could fish its own voyage, icing each haul until a sufficiency was obtained to make a payable trip, when he made sail for land. This introduced what is known as "single beating and icing in bulk." Hull also adopted the same system. In 1868 Grimsby had advanced to some importance, and the trade was in that year 26,621 tons of fish; in 1880 this had grown to 46,950 tons. Thus we may trace to the application of ice, and also, in the case of Grimsby, to special railway and dock accommodation, the great and rapid development of the North Sea trawling.

STEAM TRAWLER AND ITS APPARATUS.

A modern steam trawler, equipped with the most up-to-date appliances, costs from $20,000 to $30,000, and some of them are 100 to 130 feet between the perpendiculars and considerably more on deck, with a depth of 10 to 12 feet. Coal is usually carried in the side bunkers, which in the best ships have a floor of cement, so as to minimize the danger from fire. The finest vessels carry about 60 tons of fuel in the side bunkers adjoining the engine room, and burn only about 2½ tons with surface-condensing boilers; but fairly good ships often exceed this quantity. The economy in fuel is shown by the fact that the earlier type of steam paddle trawlers used about 35 tons of coal weekly. Self-acting scuppers to carry off the water during heavy seas contribute appreciably to the seaworthiness of the newer craft; moreover, the lifeboats are placed in a position from which they can be launched with greater facility, while occupying less space than formerly. Another variation upon the old type is that the port number of the vessel is indicated by large, raised letters and figures made of sheet iron riveted to the funnel, so as to be easily read through a glass at a distance; besides these, the vessel carries the same numbers on quarter and bow.

The ice house, which is one of the most important additions to the fishing vessels since 1883, is usually placed in front of the fish hold, and in the case of the larger craft receives 5 tons of broken ice before departing on a distant voyage. It is sent from the stores in barrels and passed from the cart to the hold by a funnel. So important has this feature become that at all the ports factories have been erected for the manufacture of ice by the ammonia system, capable of producing from 50 to 200 tons daily. On the remote grounds where most of the work of the larger vessels occurs the ice is placed over the fish after they have been gutted and consigned to the hold. The price of ice (at present $4.30 per ton crushed and delivered alongside the ship) is thus an item of moment in the trawling expenditure. On discharging the fish from Iceland, Faroe, or the Great Fisher Bank, the old ice is thrown overboard, and though it might seem economical to keep it for use in a subsequent voyage for the preservation of the offal—for which $2.45 per ton is got from the fish-manure companies—yet it is certainly the safer method. (M'Intosh's Resources of the Sea.)

THE OTTER TRAWL.

Another great change was effected about 1894 by the introduction of the "otter" trawl, the invention of Mr. Scott, the advantages of which, over the old pole trawl, were generally perceived and led to the extensive adoption of the idea. The feature of the invention is a pair of large wooden ends, shaped like a door, having in front two powerful iron bars, meeting to form a V and supported by two accessory stays, the whole forming a projecting apparatus to which the chain connected with the warp is fixed. Toward the rear, a perforated iron plate gives passage to two staves—one from each end of the powerful iron bars mentioned—for the attachment of the swivel for the trawl net. The lower portion of the wooden end is weighted anteriorly with a heavy bar of iron, which occupies nearly half the length of the apparatus. A special and powerful rectangular frame of wood, with a top switch block, is fixed at the port bow and taffrail for hoisting the ends on board, and they form a striking feature from a distance, as, with the boards, they project 6 or 7 feet above the bulwarks. The otter trawl is said to capture cod more freely than the beam trawl, as many as 20 score having been secured in one haul. Experience, indeed, has shown that its increased powers of capture are indisputable.

MODE OF FISHING.

On the Great Fisher Bank and elsewhere the trawl is usually down for five hours, although when working nearer home the time is regulated rather by the nature of the bottom than anything else. When productive ground is discovered a "dan," or buoy, is placed in the sea, with a red or black flag by day and a white globe light close to the surface at night, though it is liable to be carried away by passing ships and the lamp broken. The buoy has a pole, with heavy iron bars at one end and towards the other end about ten flat pieces of cork, upwards of a foot square. In one or two ships floats of skin, such as the liners use in herring fishing, with pole and flag, were substituted for the cork buoys, or small pieces of cork on a string. The rate of speed when trawling is about 2½ knots an hour, but when proceeding on the passage to or from port 11 knots are covered. The usual number of the crew is eight, and the method of remuneration varies at different ports. Usually, the captain and the mate have a share according to the amount captured, the rest being paid ordinary wages.

HOW THE LINE FISHERY IS CARRIED ON.

Taking into account the area of the North Sea and the number of people supplied with food from it, as well as the great variety of fish found therein, it may be regarded as the most important fishing ground in the world. Taking a line eastward from the Shetland Isles, and continuing southward to the North Foreland from shore to shore, whether in its shallows or in its depths, on its even ground or in its caverns, which the fishermen call pits or holes, fish of some kind or other are found in greater or less quantity. The variety consists of cod, ling, haddock, halibut, coalfish, whiting, and skate. These are the principal kinds caught on line, while almost every other kind which supplies the table of rich and poor is caught in the trawler or in the drift net.

So far as information can be gathered it appears that, as early as the beginning of the past century, the English and Scotch were already taking the greatest advantage of the fisheries of the North Sea. The Dutch were the only other people who prosecuted deep-sea fishing to any extent; but, although holding a prominent position in the line of fishery of the North Sea, and notwithstanding that their method of fishing is of the very best, yet in the number and tonnage of their vessels and in the number of men employed they have been left far behind in the competition.

Previous to 1862, the long-line operations never extended beyond the Dogger Bank; but since then they have, year after year, been carried farther north and east, and now the whole area from Shetland southward is fished upon. As soon as the vessel arrives on the fishing ground the lines are got ready and the hooks baited. Where whelks are used as bait the shells are broken with a mallet and the snail is sorted out and carefully put on the hook. If lamprey or herring are used, they are cut into small slices and so put on the hook. A curious fact with regard to this kind of bait is that cod, haddock, or ling will seldom or ever accept the tailpiece of either lamprey or herring. The skate, however, is not so particular with regard to the joint. The lines are rolled into a wooden tray, usually 460 fathoms in each, and the hooks are placed with careful regularity in rows on the bottom of the tray. About two or three hours before sunrise the lines are laid out, the end of the line is attached to an anchor which is secured to a buoy, the vessel is steered away, and one of the men "pays out" or "shoots" the line while the rest attend to the anchor and buoys. When the whole length of the line is out it is allowed to remain two or three hours and then the hauling commences. As soon as a cod or ling is caught it is carefully pierced under the fin on the right side in order that the air with which the belly of the fish is inflated may escape. This operation—which is carried out very quickly—having been performed, the fish is dropped into the well or hold of the ship, through which water from the sea freely circulates. The cod and haddock are usually allowed to swim about freely; the ling and halibut are suspended by their tails, and, so confined, they are found to live longer. A day's catch may vary from 20 cod or even less to 300 or 400 cod and ling, and proportionate quantities of haddock and other fish. On the return of the vessel to port the live fish are put into chests or trunks which are kept afloat in the dock and adapted so that the water may circulate freely from without. The dead fish are landed in the market and sold at once. During the summer months the greater number of the vessels go to the cod fishing at Iceland and the Faroe Isles, where they fish with hand lines. The fish caught here are salted during the first part of the voyage, and the fish so salted usually find a market in Shetland, where they are dried and exported to Spain and Ireland for consumption by the Catholic population on fast days. The line-fishing vessels are generally insured in local mutual-insurance societies against total and partial loss up to a sum representing from one-half to two-thirds of their value, and the yearly cost of insurance seldom exceeds 2½ per cent of the amount insured.

POSITION OF THE LINE FISHERY.

In Scotland the quantity of fish annually landed by trawlers—almost exclusively steam trawlers—has increased from 5 per cent of the total in 1890 to 20 per cent in 1900. In that country the development of the trawling industry and the prolongation of the herring fishery have brought about a decline of the line fishery, especially in recent years; the actual yield of the line fisheries having steadily fallen off from 80,000 tons in 1890 to 38,000 tons in 1900.

In England and Wales it is difficult to say whether there has been a similarly marked falling off in the line fishery, for the reason that the official returns fail to classify the boats with the care which marks the statistical work of the Scottish Fishery Board. An estimate, however, which is considered good enough to warrant adoption by a contemporary writer on fisheries, puts the number of first-class sailing liners belonging to the east coast of England at 240 in 1889 and only 80 in 1898, while the number of steam liners has during the same period increased from about 40 in 1889 to 80 in 1898. Generally speaking, the sailing liners elsewhere are giving up the struggle, while the steam liners are coming in, although, it would appear, not to an equivalent extent. It is worthy of note, however, that the catch of halibut, which is exclusively taken by line, steadily increases, so that no theory of a large decline in the line fishery as a whole is tenable at the present moment. That it has suffered in particular areas is unquestionable, but there are indications that the worst effects of the trawler competition have been witnessed and that the industry will hold its own in future.

FISHING IN ICELANDIC WATERS.

Reference has already been made to the Icelandic fisheries, which the Hull and Grimsby boats, with their usual enterprise, have exploited within recent years in order to supply the English markets. That the boats should have practically annexed, in an industrial sense, these distant fishing grounds was due to the discovery that the coasts of Iceland team with the commoner food fishes. The British fishermen are naturally regarded by the less enterprising Danes as intruders, and the gunboats which police the waters keep a sharp eye upon the foreign boats against infractions of the law forbidding fishing within the 3-mile limit. Many arrests are made, but as the hauls are generally very large, it is often remunerative to run the risk of detection, especially as, in the sheltered bays and inlets, it is possible to carry on operations with a good chance of evading detection. How rich the coast is in fish is shown by a recent article in the Field Naturalist's Quarterly, in which the writer, describing a trip in a trawler to these waters, remarks that "a trawler towing for six hours in the North Sea will catch less than its fellow on the Iceland grounds will often bring up in half an hour or less." The writer proceeds to give details as to the kind of fish captured in Icelandic waters during a recent voyage. He says:

> Off Portland haddock of a large and somewhat coarse size were principally taken. Cod and plaice were scarce; halibut were not numerous, but much more so than, later on, in Faxe Bay. The last named varied curiously in size, ranging from little fellows no bigger than a small plaice to monsters of 10 stone or more in weight. Arrived in Iceland, some curious differences were to be noticed. Haddock were still very plentiful, but of a smaller size than at Portland. The fish of Faxe, however, is famed for its finer and more delicate quality, the bay being reckoned, indeed, the best, although the farthest, of the fishing grounds. The plaice, for example, like the haddock, seemed here of a more refined variety, approaching very nearly in freshness of appearance to the much-sought North Sea fish. Halibut was almost entirely absent, and such few as were brought up were all of diminutive size, contrasting strangely with the giants of Portland. Cod was still scarce, this state of things remarkably illustrating the gregarious instincts of the species; for on one occasion when the skipper had suspended work for a few hours to give the hands a much-needed rest, such a shoal invaded the waters as piled high the decks of every neighboring trawler that happened to be towing at the time, yet vanishing as suddenly as it had appeared when our nets were once more shot. Suddenly, without warning, the waters were again filled with cod. Bag after bag, in towings of twenty minutes or less, were hauled in so full that the load had to be lightened alongside before it could safely be hoisted aboard. In a very short space of time the decks were choked fore and aft with the greenish fish. In less than two hours something like 4,000 fish must have been captured by the net.

ECONOMIC POSITION OF THE FISHERMEN.

When, in 1883, the late Prof. Leone Levi, the well-known political economist, presented a report to the Sea Fisheries Exhibition upon the economic position of the fishermen, he found that, as a class, they exhibited many signs of comfort; yet he came to the conclusion that the fisherman's lot was worse than that of the agricultural laborer. "While of the £11,000,000 ($53,131,500) produced by the fisheries scarcely 30 per cent, or £3,000,000 ($14,599,500), go to the pockets of the fishermen, of the £260,000,000 ($1,265,290,000), the total produce of the land, at least 25 per cent, or about £70,000,000 ($340,655,000), are spent in wages, giving in the case of the fishermen about £10 ($48.66) per head, exclusive of incomes from other occupations, and in the case of the agriculturist about £21 ($102) per head yearly, or, taking the earnings per family, less than $1.46 a week for the fishermen and about $3.89 a week for the agriculturist." But this opinion of the academic economist was promptly challenged by a higher authority upon the subject, viz, the late Mr. Spencer Walpole, who knew the fishing communities intimately. "No one," he said, "who had an acquaintance with fishermen would indorse Levi's statement. If you examine an ordinary fisherman's dress, you will find it warmer and more costly than that of the laborer; he consumes a larger proportion of animal food than the laborer; you will find rows of cottages not merely occupied but owned by fishermen, built or purchased out of the profits of the fisheries. Many of them own their own nets and lines, and some of them have a share in the boats in which they sail. Many of the masters are boat owners, with £250 to £1,500 ($1,216 to $7,300) of capital, who have begun their lives as ordinary fishermen." Professor M'Intosh, of St. Andrews, adds, moreover, that in communities of sober and industrious fishermen comfort is almost always present and want unknown.

Twenty years have elapsed since the introduction of steam revolutionized the fishing industry, yet, as Professor M'Intosh points out, the condition of the sober and industrious liner of to-day is far from being destitute, and many are able to utilize the savings bank to acquire property or a competency for their old age. It could not well be otherwise when, with all the uncertainties of fishing, four men will occasionally have about $126.50 a week, or a single "shot" which produces $19.47 or $43.80 in white fishing. In herring fishing, again, a crew of two boys and a man may make $43.80 in a single night, and this in the year 1898. This holds good more particularly among the thrifty Scotch, but even in England a sober fisherman experiences little difficulty in providing against old age.

Of the various plans indicated by Leone Levi by which the fishermen might secure for themselves a larger proportion of the fruits of their hazardous occupation, many have been carried into effect during the years which have supervened. The application of steam power has, it is true, driven many of the smaller and inferior equipped vessels out of the race; but, on the other hand, the thrifty men, by putting their capital together, have built vessels of a more remunerative kind. For instance, a modern herring vessel must earn a gross sum of $7,300 before any profits can be distributed, yet in a fairly good season, such as that which has just closed (December, 1902), everyone interested in the voyage will receive not only a sum sufficient to maintain his family, but a considerable lump sum, which, if he be frugal, will form the nucleus of a capital fund large enough to start him eventually as part owner of a vessel.

A less satisfactory aspect of the matter comes into view when the movement of population from the fishing villages into the great centers of the industry, which has been brought about by the development of steam trawling, is taken into consideration. The breakup of old associations and the transference into the temptations of town life of a rude and simple class necessarily had unpleasant consequences. In the old days the ties of home were nowhere more in evidence than among the fishing community. Except during the absence of the breadwinners on the "fleeting" expeditions, the relations between a fisherman and his family were constant and unbroken. At the present time, however, new conditions govern the fishing industry. A large proportion of the men are absent from land the greater part of the year, fishing at Iceland or in other distant waters. Home life is almost impossible; hence, in great ports like Grimsby and Hull, the men become easy victims to the prevailing temptations of immorality and drink. In both towns the existing state of affairs is deplored by all thinking people, yet it would appear that, so long as men are put ashore at frequent intervals with plenty of money to spend and few responsibilities to check them, a radical cure is out of the question. Thrift is hardly in evidence among the younger men, yet their many admirable qualities are conceded by everyone. At a moment's notice they are ready to risk their lives to save those of others. Every year the annals of the sea are illuminated by instances of extraordinary personal heroism on the part of these men, and scarcely a month passes without a foreign government making recognition of the bravery of Hull and Grimsby fishermen towards imperiled fishermen sailing under an alien flag. Bluff in speech and simple in manner, these sturdy men fall all the more easily into the abounding snares of a great seaport; hence the depressing features to which reference has just been made.

THE APPRENTICESHIP SYSTEM.

Another blot on the fishing industry, although mostly confined to one particular area, is the apprenticeship system. Years ago, the London workhouses adopted the idea, from the best of motives, of apprenticing lads to the Grimsby smack owners, the advantage being that, at the expiration of the indentures, they had learned a trade. On the other hand, the owners appear to have welcomed the system upon the ground that it provided them with a supply of labor for elementary work on board. Actually, the trade of a fisherman under modern conditions is acquired so easily that the apprenticeship system is superfluous, and the result is that, as soon as the lads recognize their value, they desert the vessel in order either to secure an engagement on another trawler or to reach another port. In other instances, the rough life at sea—for which many of them are physically unfitted—or occasionally harsh treatment from the crew leads to the same result. In such cases, the absconding apprentices are liable to prosecution, and one of the most painful features of the Grimsby trade is the frequency with which lads are sent to prison for one or two months, thus stamping them as felons at the outset of life. The British press has frequently severely condemned this system, and there can be no doubt that public opinion, even in Grimsby, perceives that the facile manufacture of young criminals is entirely out of harmony with current ideas. From the fact that in Hull the apprenticeship system no longer exists, and that out of 111 apprentices at the English ports 79 are to be found at Grimsby, it may be gathered that the method is in no way necessary to the industry, and as a matter of fact the system is steadily dying out, year by year.

THE HUMBER FISHERIES COMPARED WITH CONTINENTAL FISHERIES.

In order to illustrate further the extraordinary development during recent years at Hull and Grimsby as compared not merely with other English ports, but with the chief continental countries, the following table is presented:

Year.	Steam fishing boats.	
	Hull.	Grimsby.
	Number.	*Number.*
1891	135	98
1894	192	167
1899	260	280
1900	385	484

Yet, according to an official Belgian return, there were in February, 1901, only 26 steam trawlers under the Belgian flag, all sailing from Ostend; Denmark had only 2 in 1896 and 3 in 1899; France had in 1900 only 3 steam vessels engaged in North Sea trawling. The Netherlands had 2 in 1898, but the number has never augmented largely. Germany alone appears to have developed its steam fishing fleet to any noteworthy extent, the total having grown from 1 in 1886, 18 in 1890, 103 in 1897, to 126 in 1899. Thus, the striking fact is brought out that all of the other countries bordering on the North Sea own less than one-fourth of the number of fishing vessels sailing from the Humber ports alone, leaving out of consideration the numerous other east coast English fishing ports.

How unquestioned is the supremacy of the Humber ports in the English fishing industry is also illustrated by the following table, extracted from the official report for 1900:

Wet fish landed.

Port.	Quantity.	Percentage.
	Cwts.	
At Grimsby and Hull	3,439,271	40
At 11 other ports with over 100,000 cwts. each	4,157,064	48.3
At 25 other ports with between 10,000 and 100,000 cwts. each	745,076	8.7
At 72 other places	258,650	3
Total	8,600,061	100

THE PRICE OF FISH.

With respect to prices, it would appear that no exact relationship exists between the quantities landed in a given year and the average prices realized. Moreover, the popular demand for fish increases so steadily that, despite the immense increase in the quantities landed, market prices are well maintained, as the following table shows:

Year.	Average price per cwt.		
	Cod.	Haddock.	Ling.
1890	$3.36	$2.33	$3.46
1891	3.34	2.47	3.32
1895	3.02	2.37	2.83
1900	3.56	3.32	3.12

Another feature of the British fish markets during the past twenty years has been the augmentation in price of the better qualities of fish, especially flatfish, and this although—despite a popular belief that these kinds of fish are being exhausted owing to lower rate of reproduction compared with commoner fish—the quantities brought to land have steadily increased. The appended table is instructive as showing the extra price which must be paid at the luncheon or dinner table for superior fish as compared with a few years ago:

Year.	Average price per cwt.			
	Sole.	Turbot.	Plaice.	Halibut.
1890	$30.89	$17.75	$4.62	$7.39
1895	32.59	18.72	5.10	8.51
1900	36.73	20.20	5.83	8.26

Lobsters show a serious falling off in the numbers caught during the past decade; crabs, a slight decline; while oysters remain stationary. On the other hand, the price of oysters has substantially increased, while that of lobsters and crabs has not been materially affected.

THE FISHERMEN OF ICELAND.

A cleverly written article by Mr. A. E. Johnson in the Field Naturalist's Quarterly, which has been already cited in this report, contains an interesting paragraph in reference to the fishermen of Iceland. This writer made a voyage in a Grimsby steam trawler to the Icelandic fishing grounds, and notes in a simple and graphic narrative the results of his observation and experience. He sees with keen discernment and good judgment the scenes presented to his view in those regions, and draws the following picture of the

Icelandic fishermen as they appeared to him on the exposed coast of their native land:

> Frequent visits were paid to us, while in Faxe Bay, by crews of coast Icelanders. Hardy sons of the old Viking are these shore dwellers, with their high cheek bones, fair hair, and keen blue eyes, buffeting the waves and enduring the bitter cold often enough for twenty-four hours and more at a stretch in their small open boats. To them, the development of the Iceland fisheries has meant much. Formerly, they wrested a bare living from the sea by fishing with lines for cod (as they still do when few trawlers are in the bay) and curing the hardly won catch on the beach for sale to the storekeeper in the town, who, after getting the best of a hard bargain, exported the fish to Spain and other fish-eating countries. But since the advent of the steam trawlers, the coast Icelander pursues a different course. Now, he makes a tour of the different ships, and barters whisky or cigars, or even home manufactures, such as slippers of seal or sheep skin, for a load of small or useless fish, rejected by the skipper, but which he carries back to the curing grounds and turns to profitable account. English shipowners hear of this traffic with disapproval, fearing lest valuable fish be thus lost to them; but in most cases the alarm is unnecessary, while the fishing grounds benefit by the removal of waste that would otherwise be flung overboard to rot on the bottom.

SCIENTIFIC INVESTIGATION OF FISHERIES WORK.

Much valuable work of a scientific nature is being carried on in order to ascertain the facts relating to the navigation and growth of sea fisheries. As the result of the recent international conference at Christiania, the British Government guaranteed £3,500 ($17,032) a year for three years to prosecute researches of this nature, and private liberality has augmented these resources by providing a steam trawler named the *Huxley*, after the great biologist, in order to carry on the work under favorable conditions. Describing the mode of research, the Yorkshire Post says:

> The headquarters of the *Huxley* will be at Lowestoft, and her research work will be in charge of Mr. W. Garstang, of the Marine Biological Laboratory, who will have a staff of four naturalist assistants and a crew of twelve. The first efforts of Mr. Garstang and his assistants will be to gain information on the migration of fishes and their rate of growth. Fish will be caught in the trail net with which the *Huxley* is provided, carefully measured, and put back into the sea, with an identifying tablet of bone attached to the fleshy part of the dorsal fin by means of a piece of silver wire. The North Sea fishermen have been apprised of the nature of the experiments, and when they catch one of these marked fish they will receive a reward of 2s. (48.6 cents) on taking it to the Marine Biological Laboratory at Lowestoft. If the fish is valuable—for instance, a large turbot—compensation to the amount of the value of the fish, plus the reward of 2s., will be given to the fisherman. A register will be kept on board the *Huxley* showing the exact measurement of the fish, the place where it was returned to the water, and the date. In this way, it is hoped to gain much valuable information concerning the rate of growth and migration of the *Pleuronectidæ*, the family of the side-swimming flatfish. The vessel will be at sea from a week to a fortnight at a time, scouring the North Sea for the purpose of making investigations in its once rich fishing grounds.

This, however, does not comprise all the work the English branch of the International Biological Research Committee has set itself to accomplish. Similar work will be done in northern waters by the Scottish Fishery Board, and in the English Channel a quarterly series of observations will be undertaken on such matters as the temperature and salinity of the sea and the floating life on the water. The herring and the mackerel subsist on these minute organisms on the surface of the water. These investigations will be conducted from the Marine Biological Laboratory at Plymouth.

IS THE SEA BECOMING EXHAUSTED?

From the earliest times of which we have records, the improvement of the facilities for catching fish has given rise to fears of the ultimate exhaustion of the resources of the sea. As far back as 1376, Parliament was petitioned to prohibit the use of an instrument called the "wondrychoune," by which "so many small fishes were taken that the fishermen did not know what to do with them but to feed and fatten their pigs, to the great damage of the whole commons of this Kingdom." Again, at various times, measures were passed regulating the size of nets, clearly showing that, in the eyes of the legislature, the destruction of immature fish was a peril to the food supply of the country. During the last century the cry was raised at intervals that the North Sea was becoming depleted of fish, and, whenever the agitation became politically significant, a royal commission was appointed to investigate the subject. Of these inquiries, the most important was that carried out in 1883 by a small number of experts presided over by the late Earl of Dalhousie, who visited the principal ports and collected a volume of evidence from the fishermen. The result was that the commission presented a report to Parliament setting forth that the alleged diminution in the fish supply had not been proved; but the agitation continued, and, as a concession to the line fishermen, sea-fisheries committees were constituted, which were authorized, if they saw fit, to prohibit trawling within inshore waters—that is to say, within 3 miles from land. The law is enforced most rigorously in Scotland, where the line-fishing industry is very strong; but so far from satisfying the malcontents, the demand is now being raised for an extension of the limit to 12 miles. In constituencies where the fishing element is powerful, no candidate is considered acceptable who is unable to pledge himself to vote for this change.

Scientific testimony, however, is almost unanimously opposed to further restrictions upon the fishing industry, and in no part of the country is this attitude more marked than in Scotland. Under the auspices of the Scottish Fishery Board, exhaustive tests have been applied during a series of years with a view to ascertaining whether the closing of the inshore waters against trawling operations has resulted in increased quantities of fish being found there. Professor M'Intosh, of the University of St. Andrews, has tabulated the catches made during this extensive period by a vessel properly fitted out for the purpose, and has published them in a volume entitled The Resources of the Sea. Briefly, Dr. M'Intosh, who approached the subject with a perfectly open mind, has convinced himself that the whole agitation rests upon a radical fallacy—that is to say, the fears of an ultimate extinction, or even a perceptible diminution, of the fish supply are entirely baseless. "The cry concerning the annual diminution of our fish supply has," he says, "been dispelled by the institution of statistics." The alleged destruction of spawn has no basis in fact; the destruction of immature fishes is common to all classes of fishermen and nowhere has proved to have resulted in the ruin of any sea fishery. The closure of the 3-mile limit has failed to increase the number or size of the food fishes. The evidence given before the trawling commission of "trawling out" certain grounds in three years with a small vessel carrying a small trawl is at variance with experience. The statistics referred to by Professor M'Intosh show that the quantity of fish landed in the United Kingdom (exclusive of shellfish) has risen from 12,800,000 cwts., valued at £6,000,000 ($29,200,000), in 1889, to 15,500,000 cwts., valued at £8,400,000, ($40,880,000), in 1898, and later reports prove that the increased catches are still in evidence.

Moreover, a greater authority, the late Professor Huxley, has shown, in a manner calculated to appeal to the lay imagination, how idle are these attempts to check the operations of man in face of the colossal reproductive and destructive work of nature herself. In an address delivered some years ago to the National Fisheries Conference he said:

> At the great cod fishery of the Lofoden Islands, the fish approached the shore in the form of what the natives call "cod mountains"—vast shoals of densely packed fish 120 to 180 feet in vertical thickness. The cod are so close together that Professor Sars tells us that the fishermen who use lines can notice how the weight, before it reaches the bottom, is constantly knocking against the fish. And these shoals keep coming in one after another for two months, all along the coast. A shoal of codfish of this kind, a square mile in superficial extent, must contain at the very least 120,000,000 fish. This allows over 4 feet in length for each fish, and a yard between it and those above, below, and at the sides. But it is an exceptionally good season if the Lofoden fishermen take 30,000,000 cod, and not more than 70,000,000 or 80,000,000 are taken by all the Norwegian fisheries put together. So that one fair shoal of all that approach the coast in the season must be enough to supply the whole of the codfish taken by the Norwegian fisheries and leave a balance of 40,000,000 or 50,000,000.
>
> The principal food of the adult cod appears to be herring. If we allow only one

herring to each codfish per diem, the cod in a square mile of shoal will consume 840,000,000 herring in a week; but all the Norwegian fisheries put together do not catch more than half that number of herring. Facts of this kind seem to me to justify the belief that the take of all the cod and herring fisheries put together does not amount to 5 per cent of the total number of the fish. But the mortality from other sources is enormous. From the time the fish are hatched they are attacked by other marine animals. The great shoals are attended by hosts of dogfish, pollock, cetaceans, and birds, which prey upon them day and night and cause a destruction infinitely greater than that which can be effected by the imperfect and intermittent operations of man. I believe, then, that the cod fishery, the herring fishery, the pilchard fishery, the mackerel fishery, and probably all the great sea fisheries are inexhaustible—that is to say, that nothing we do seriously affects the number of fish, and any attempt to regulate these fisheries seems consequently, from the nature of the case, to be useless.

Dr. Brown Goode, of the United States fisheries department, stated upon the same occasion that American observation led to the conclusion that "the number of any one kind of oceanic fish killed by man is perfectly insignificant when compared with the destruction effected by their natural enemies." Mr. Shaw Lefevre, a member of the royal commission, gave his opinion thus:

> I think that it may be taken as an established and incontrovertible fact that there has been no falling off in our fisheries, but a very great increase; an increase in most cases greater in proportion than in the number of men and boats employed, and giving an adequate return to the very largely increased capital devoted to them.

Lastly, as Professor M'Intosh points out, the returns from the various centers all over the country have, for the most part, steadily increased since 1884, in which year the steam trawl may be said to have come into general use; and though it is true that large quantities are captured on the Great Fisher Bank, Iceland, and other regions at a distance from British waters proper, yet this is due to the more remunerative nature of the work and not to the dearth of fishes in the seas at home. The increase has not been fostered by the closure, but in the case of both liner and trawler is due to enterprise which was independent.

WM. P. SMYTH,
Consul.

HULL, *December 21, 1902.*

AN IMMEDIATE OPPORTUNITY FOR AMERICAN COD FISHERMEN.

In my report dated November 5, 1902,* I called attention to the failure of the French sardine catch this year and to the consequent heavy loss to all those engaged in this important industry, of which Nantes is the center of exportation. As stated, the failure of the catch was due to the high price and to the consequent scarcity of the bait—a sort of oily dough made of the eggs and entrails of codfish—known commercially as "rogue." The failure of the catch has not only caused great loss to the French sardine packers and exporters, but has entailed such misery upon the poor fishermen of Brittany that popular subscriptions have been opened all over France to save them from want and starvation. This unfortunate condition has developed a scientific research in the direction of an artificial or manufactured rogue to take the place of the real article, which is imported principally from Norway and Sweden and to a small extent from Newfoundland. It is now claimed that Monsieur Landriene, a commissioner of marine, has discovered a substitute which will effectively satisfy the demand. This consists of a mixture of the heads, fins, and other débris of mackerel, tunny fish, and sardines cut away at the packing factories. This mixture is run through a sort of machine resembling an ordinary American sausage grinder, and the ground product, after being first saturated with strong, old brine, is worked up into a dough resembling in color and smell the famous Norwegian rogue. This product, Monsieur Landriene claims, is effectively preserved by the brine; it is harmless as a fish food, has a healthy odor, and dissolves almost immediately when cast into the sea, producing in the water the oily condition that is necessary to attract the sardines.

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*ADVANCE SHEETS No. 1514 (December 8, 1902).

Many believe this to be a satisfactory substitute for the rogue of Sweden and Norway. It is a product that can be so easily and cheaply made at any of the packing factories that the sardine fishermen need give no further thought to the grave question of the bait, provided, of course, that the sardines will take to it as voraciously as they do to the bona fide article, which remains to be seen. It is certain, in any event, that until the value of the artificial rogue shall have been established there will be the usual demand for the regulation bait, which, as I have already stated, is made from the eggs and entrails of codfish; and there is every reason why the cod fishermen of New England and elsewhere in North America might largely supply this market with the product in question. There is an annual demand for about 50,000 barrels of rogue, each barrel containing about 225 pounds, and the sardine packers are ready to buy from the first reliable purveyors who will offer a good quality of rogue at prices ranging from 50 to 60 francs ($9.65 to $11.58) per barrel. Incidentally, it may be stated that the American rogue, which has from time to time made its appearance in this market, is not so well thought of as the Norwegian rogue, for the reason that it is preserved with dry salt instead of in brine. It is held here that the roe when cut out of the cod should be at once plunged into old brine and left to soak for at least thirty days before being packed into barrels for use.

The sardine-fishing season begins here about the 1st of June, and if any of our cod fishermen think the matter worth their attention they should open negotiations with the packers and other buyers here as soon as possible. If it would facilitate the matter in any way for our exporters, I should be glad to transmit any propositions they may have to make to some of the leading packers of this consular district. The customs duty in France on rogue (unless coming from an English port), with all charges, amounts to a little less than 1 franc (19.3 cents) a barrel.

BENJ. H. RIDGELY,
Consul.

NANTES, *January 27, 1903.*

ELECTRIC-POWER DISTRIBUTION IN GREAT BRITAIN.

The use of electricity in everyday affairs is developing enormously in Great Britain. Parliament offers every encouragement by readily granting large powers to responsible bona fide companies. The first of the "power bills" was introduced in 1898, but the opposition was so strong and the favorable sentiment so little developed that it was not till 1901 that the grants were made under which the present companies, described below, are generally organized. The Newcastle Company is the only one fully at work, though the County of Durham Company has its enterprise in partial operation. Several companies are nearly ready to operate, others are at work upon the necessary buildings, while the remainder are still in embryo.

POWER-SUPPLY COMPANIES ORGANIZED OR ORGANIZING.

Newcastle-on-Tyne Electric Supply Company—capital, £500,000 ($2,433,250)—was the first electric-power-supply company to begin work in this country, starting to furnish power in 1898 on a small scale, which was greatly enlarged in 1902. It covers a short strip of country along the north bank of the Tyne, but it is the intention to take in a much larger territory.

South Wales Electrical Power Distribution Company; capital, £750,000 ($3,649,875); covers the coal and iron working portion of that region.

Shannon Water and Electric Power Company; capital, £360,000 ($1,751,940); covers a 30-mile circle about Limerick, Ireland.

Lancashire Electric Power Company; capital, £3,000,000 ($14,599,500); covers the Lancashire coal fields and extends to the sea on the west.

County of Durham Electric Power Supply Company; capital, £500,000 ($2,433,250); covers 250 square miles, bordered on the north by the Tyne and on the east by the sea.

North Metropolitan Electric Power Supply Company; capital not yet announced; covers 325 square miles to the north of London.

Cleveland and Durham County Electric Power Company; capital, £1,000,000 ($4,866,500); covers 820 square miles adjoining the Durham County territory on the south.

Clyde Valley Electrical Power Company; capital, £900,000 ($4,379,850); covers the industrial region of the Lower Clyde, in Scotland—an area of over 700 square miles.

Yorkshire Electric Power Company; capital, £2,000,000 ($9,733,000); covers 1,800 square miles in South Yorkshire.

Gloucestershire Electric Power Company; capital, £250,000 ($1,216,625); covers 326 square miles along both sides of the Severn.

Cornwall Electric Power Company; designed to revive decaying mining industries by supplying cheap power; covers all of Cornwall—1,356 square miles.

Leicestershire and Warwickshire Electric Power Company; capital, £750,000 ($3,649,875); covers the two counties—1,699 square miles.

Kent Electric Power Company; capital, £750,000 ($3,649,875); covers 1,520 square miles between London and Dover—south of the Thames.

Midland Electric Corporation for Power Distribution; capital, £200,000 ($973,300); covers 100 square miles a short distance west of Birmingham.

Derbyshire and Nottinghamshire Electric Power Company; capital stock, £1,800,000 ($8,759,700). This corporation, whose territory covers a portion of this consular district and embraces all of this county and most of Derby, an area of over 1,500 square miles, is in certain material respects the most extensive in its aims of all the companies formed. The project was started in 1898, when the contemplated area was much larger than now. Then the promoters were associated with American electrical interests; now they are local manufacturers who want cheap electric power. The act of Parliament in behalf of this company was passed July 26, 1901. It confers liberal powers, such as the right of compelling the sale of necessary lands, the construction and use of all requisite or convenient buildings or apparatus, and the like. The only material restriction relates to the compulsory purchase of houses occupied by the laboring class, which is not permitted unless new buildings are provided for the dispossessed tenants. The act excludes the cities of Nottingham and Derby from the territory covered by the grant, in compliance with their objections that their own electric plants would suffer loss.

On some computations, the coal-bearing areas within the scope of the scheme are the richest in the world, and the mines themselves would justify the promotion of a wholesale system of electric-power supply. Several did put down electric plants, but it was found that this made the cost of electric power too great. Besides the advantage to the mines, it is believed that many local industries in villages or the country will be greatly stimulated by the advantages of cheap power. Some of the largest lace, shoe, and hosiery factories are outside the cities. In addition, various old-established concerns using hand power and in a decaying state will receive new leases of life.

One avowed object of the cheap-power schemes is to check the exodus from the villages to the towns by supplying power as cheaply in the former as in the latter. It is expected that manufacturers will take advantage of the cheap land and low taxes in the country and villages to erect factories there. The tendency will be to check the growth of Nottingham, which has been pronounced in recent years.

Within the area of the project there are 564 works of importance, 159 of which are coal pits. Some 400 firms, representing a capital of about £20,000,000 ($100,000,000 in round numbers), supported the bill before Parliament. It was at first intended to have four generating stations and a total horsepower of 60,000, but the applications for power have now so far exceeded the estimates that two, and perhaps more, generating stations will be added, with a proportionate increase of horsepower. These stations will be distributed as evenly as possible within the area, near enough to coal mines to secure an easy fuel supply, but not too near to interfere with competition in the buying of fuel. It is obvious that much expense will be saved by the use of but six sets of engineers, firemen, etc., and only one office staff, where hundreds of men are necessary in the case of individual power supply. Of equal economic importance is the saving to be effected by the use of larger engines and dynamos. The smallest unit the company will put down is one of 3,000 horsepower, whereas the average individual unit is perhaps of 200 horsepower. The difference in cost of running units of such contrasting capacity is estimated at 33 per cent, and while two men are required to run a 200-horsepower unit continuously, six are sufficient for one of the larger size. The company contends that if a manufacturer can buy coal for as little as 5s. ($1.21) per ton, he will even then find the use of electricity considerably cheaper than steam. It is calculated that in the case of a 250-horsepower engine there will be a saving of 36 per cent. Another material advantage is that when once installed the electric motor is ready at a moment's notice, day or night, by the mere turning of a switch. A peculiar inducement to maintain low charges is found in the parliamentary act, which provides that the dividends receivable by the stockholders of the company are dependent on the prices paid by the consumers, increasing as the charges decrease. The company can not, no matter what the agreement may be with a consumer, charge him more than the lowest price paid by any other consumer whose circumstances are similar. Variation of price is of course allowed where the supply varies. Thus for less than 100,000 units per annum the company will charge 1¼d. (2½ cents) per unit, but for 1,000,000 units the charge will be 1d. (2 cents) per unit. That these charges are relatively very low appears from the fact that, according to published statistics, the average selling price of the 97 municipally owned electrical-supply undertakings in this country is 5½d. (11 cents) per unit. These, however, work at a disadvantage as respects low charges, as they depend for their revenue mainly upon supplying electric lighting, required for only a few hours each day.

THE GENERATING STATIONS.

The fitting of all being essentially the same, a general description of one will suffice. Twenty-four water-tube boilers are provided. Each will evaporate 1,400 gallons of water per hour when fired with slack coal, and will generate this steam at a pressure of 200 pounds per square inch, after a test pressure of 300 pounds. The fuel, brought direct from the mine, will be raised by automatic elevators above the level of the boilers and will be shot into hoppers, one above each fire-hole door. The ashes and clinkers will drop through another set of hoppers into trucks in the basement beneath the grates. Instead of huge chimneys, forced draft, created by means of electrically driven fans, will be employed, and will permit the use of the very cheapest coal, which is often a waste product at the mine, and, it is understood, will cost the company only 1s. 6d. (36 cents) a ton. The feed pumps supplying the boilers with water will also be driven by electric motors and each will be capable of supplying 10,000 gallons of water per hour, and in addition injectors will be provided to supply the boilers should any accident happen to the pumps. From the boilers to the engines the steam will be conveyed by a system of piping, so arranged that any engine can be supplied from any boiler. The engines to be first installed will be of 3,000 horsepower each and of the vertical, triple-expansion, three-crank condensing type, with the cranks of the crank shaft set at angles of 120° apart. The engines will work at about 160 revolutions per minute. The condensers will each be capable of turning 22½ tons weight of exhaust steam back into water per hour, while the water-circulating pumps for the condensers will each be capable of delivering 160,000 gallons per hour against a head of 40 feet. The main generators will be coupled directly to the crank shafts of the engines, and will therefore run at the same speed—160 revolutions a minute. They will generate a three-phase alternating current at a pressure of 10,000 volts and with a low periodicity. Such an enormous pressure allows the energy to be transmitted long distances with small loss and permits of very small conductors being used to convey that energy to its work, capital outlay on the mains and general working expenses being thus both reduced. Each generator is so designed that it can be satisfactorily worked in "parallel" with all or any of its fellows—that is, should three out of five be working, and should another be required, it can be started, run up to its right speed and pressure, and then attached to the load without any danger of itself "jibbing" or of making any of the others inclined to "jib."

The buildings for the installation of the plant will each be about 750 feet long, 280 feet wide, and 55 feet high.

From the station to the consumer, the current is to be conveyed by properly insulated and protected copper conductors. The three-phase current requires a three-core cable, each core being made of strands of the purest obtainable soft copper wire. Each of the cores is insulated with paper wound around it to the thickness of at least a quarter of an inch. The cores are then placed in a vacuum to be thoroughly dried; then the insulator is soaked with bitumen oils, and the cores are next stranded together into one rope, this being made into circular form by more paper impregnated with bitumen oils. The cable is then passed through a bitumen and wax compound, and afterwards has drawn upon it by hydraulic pressure a lead sheath, jointless and one-eighth of an inch thick. A double ring of steel wires is tightly wound over and around the sheath to protect against mechanical injury. The cable is laid some 2 feet underground, in earthenware troughs, which are filled in with molten bitumen that sets—not too hard to be got out again if required—all around the cable. The troughs are covered by earthenware tiles set fast in the hot bitumen. Before leaving the works, the cables, which have to carry energy at a pressure of 10,000 volts, are tested at a pressure of 25,000 volts, after they have been immersed in water twenty-four hours. In cases where a lower pressure is required, the 10,000-volt current is passed through a "static transformer," which can alter a small current of high pressure into a larger current of lower pressure.

In the company's plans, all the best features of English, American, and continental practice have been embodied.

Work on the plant has been under way for the past nine months and will be completed in another three months, when the supplying of power will at once begin.

ECONOMIC AND FINANCIAL ADVANTAGES OF ELECTRIC POWER.

The numerous collieries are likely to be among the principal customers of the electric-power companies. Taking as a basis the fact that about 7 per cent of the coal raised is consumed in obtaining the 93 per cent sold, it has been estimated that by the use of electricity in the mines 10,000,000 tons of coal might be saved annually. In addition, by the ease and rapidity with which it can be taken wherever required, electrical energy scores over either steam or compressed air. An electric cable large enough to convey 500 horsepower—with its copper conductors, insulation, lead sheathing keeping out all moisture, and steel covering protecting it from mechanical injury—will be only 1¾ inches in diameter, and can be readily wound around a drum and unrolled into place. On the other hand, a steam main for the same power would have great weight, absolute rigidity, troublesome couplings, joints, and bends, and columns, hangers, etc., for support. Underground pumping and the ventilating plant on the surface can also be advantageously operated by electricity.

The possibilities of these electric-supply plants are enormous, providing, as they do, a power which can be adapted at will to the driving of a one-twelfth horsepower ventilating fan in one's office or to a 4,000-horsepower rolling mill.

The experience of the Newcastle Company, which has been operating for the past four years, proves the cardinal fact that the cost of generation per unit of electricity rapidly decreases as the load on the station is increased. Power can be profitably supplied to various large works at a little over 1d. (2 cents) per unit.

To illustrate inner financial workings, an example is given of a supposed power undertaking costing £500,000 ($2,500,000) for generating station and transmission mains. The station would have a capacity of about 12,000 kilowatts, which would supply about 23,000,000 units per annum, with a load factor of 25 per cent. An appreciable amount of electricity being lost in transmission and "transformation" to various pressures, which is allowed for in all calculations, 20,000,000 units are taken as actually sold in the present case. The cost of generation and transmission is itemized as follows, distance of transmission being 16 miles:

Description.	Cost.		Cost per unit sold.	
			Pence.	
Coal	£14,231	$69,255	17	$0.34
Oil, water, waste, etc	3,500	17,033	4	.08
Repairs, maintenance, etc	19,800	96,357	23	.46
Wages	9,594	46,689	11	.22
Rents and taxes	3,400	16,546	4	.08
Management, engineering, etc	9,500	46,232	11	.22
Total	60,025	292,112	70	1.40

Should the 20,000,000 units be sold in bulk at 1¼d. per unit, the result is—

Revenue	£104,169	=$506,924
Expenses	60,025	= 292,112
Profit	44,141	= 214,812

This shows 9 per cent profit on the capital expended, at the lowest charge per unit—the bulk rate—and with a liberal estimate of expenses. The Newcastle Company has, in fact, already got below these figures as to the cost of generating. Taken as they are, the figures form the basis of a belief that a large power company will be able to supply not only factories with cheaper power than they can otherwise obtain, but also electric-lighting companies with electricity in bulk at lower rates than they themselves can reach with the strictest economy and the best management.

Although overhead cables are freely used on the Continent and in America, tending considerably to the cheapness of transmission, at the present time nearly all electrical-transmission work at extra high pressure (such as is required in power transmission) is done by underground cables in this country. There is hope that a more general use of overhead cables may be permitted, in which case the cost of transmission will be sensibly less than is contemplated in the foregoing table.

FRANK W. MAHIN,
Consul.

NOTTINGHAM, *January 12, 1903.*

APPARATUS FOR ARRESTING FIRE IN SHIPS' HOLDS.

It is well known that fires on board a ship are most difficult to contend with; it is next to impossible to find the actual location, there is danger of suffocation in any attempt to go below, and a fire in the center of the cargo can not be reached.

The heating of coal cargoes has caused the loss of many ships, and there has been little chance of coping with such a condition, except by discharging a portion of the cargo and flooding the hold with water, which is often impossible.

Dr. L. E. Eames, of this city, has evolved a system for using gas, for which he claims the following:

1. It will check spontaneous combustion where there are evidences of heating.
2. It will extinguish fire if it has already occurred.
3. It will prevent the occurrence of an explosion from a mixture of gas and air.

By his method the air in the ship's hold is rapidly mixed with a sufficient supply of a gas to make it efficient in arresting a heated condition, the gas being absolutely nonexplosive.

The apparatus consists of a fairly water-tight wooden box or trough, built on the floor of each hold, at the lowest point, and as near the center between the bulkheads as is convenient (in coal bunkers, at the bottom toward one side), and a small pipe leading from the deck to this trough. In coal ships, the thermometer tube may serve for the purpose, and when the ship is carrying a general cargo the tube may remain a permanent fixture. The trough is filled with a few tons of a material about half as bulky as coal. This, with some gallons of an easily stored liquid, comprises the entire outfit. The entire cost of fitting a ship with apparatus sufficient for charging the hold six times is estimated at $100. As the material does not deteriorate with age or exposure to the action of salt water, it may be carried for years, yet is always ready for use in case of emergency.

F. W. GODING,
NEWCASTLE, N. S. W., *December 8, 1902.* *Consul.*

SELF-IGNITION OF COTTON.

Vessels laden with cotton are not infrequently reported as having fire aboard, and it is commonly assumed that it is caused by the self-ignition of cotton. However, experts have now come to consider that cotton, being of the same composition as wood, can not of itself become ignitible.

Recently, one of the highest Prussian courts decided an important case of this nature by declaring that there is no such a thing as self-ignition of cotton. A firm at Lodz, in Russia, had entered suit against the Breslau-Warschau Railroad Company for $8,500 damages for cotton lost by fire. It appears that a shipment of American cotton had been sent in different lots, during the summer of 1898, from Bremen to the plaintiffs, over the road of the defendants, to the station Wilhelmbrueck, in Silesia. The shipping agent there stored 365 bales outside the freight depot alongside of the railway track, and left them for some time exposed to all sorts of weather and accidents.

On August 5, 1898, the bales burst into flames while a locomotive was doing some switching near by. The plaintiffs claimed damages, resting the suit upon the assertion that the fire was caused by a spark from the locomotive, and therefore holding the railroad responsible. The defendants contended that the business of transportation had been completed the moment they had delivered the goods and the freight had been paid, and that they had nothing to do with the storing of the cotton thereafter. The entire responsibility for the damage therefore rested with the shipping agent, who represented the plaintiffs and allowed the inflammable cotton to lie for months without any protection.

As the question of self-ignition of the cotton entered largely into the case, experts from Bremen and Hamburg were asked to submit opinions. The Breslau court handed down a decision, the substance of which was as follows:

> Self-ignition of cotton is entirely out of the question, according to the universally acknowledged opinion of men of science and men of experience. It is a peculiarity of cotton that it may conceal combustible matter within it for weeks, and longer, as was seen in this very case; for several bales of cotton that were saved from the fire and lay in a pond for some time during the following winter suddenly burst into flames late in the following spring, without any cause, as was proved by competent witnesses.
>
> Therefore, the plaintiffs themselves and their shipping agent were solely responsible for the damage done by this fire, not having taken proper steps for the protection of their property.

HENRY W. DIEDERICH,
Consul.

BREMEN, *January 26, 1903.*

MARSEILLES OIL AND SEED TRADE OF 1902.

The expectation intimated to American exporters early in 1902 that French buyers would be obliged to seek our cotton-seed oil later on has been sustained only to a degree. The receipts at this port during December were 2,909 tons, or about double those of any previous month, and the arrivals during the last six months of the year have been 8,228 tons, as against 5,484 tons during the first six months. The statistics therefore show that the consuming market, driven to this course by depressed business conditions in the south of France and excessively high prices for edible oil, preferred not to buy, rather than to meet the higher range of the market. The stock of cotton-seed oil on hand on December 30 was but 540 tons, against 1,800 tons at the same period last year; this is the lowest figure recorded since 1894. The statistical situation is as follows:

Total imports of cotton-seed oil.

Description.	1902.	1901.	1900.
	Tons.	*Tons.*	*Tons.*
American oil	13,712	33,604	32,783
English oil	1,030	604	1,672
Other oils	50	114	126
Total	14,792	34,322	34,581

The highest price paid for American oils in May of last year was $13.80 per 220 pounds, and the lowest $11.48 in November; English oils ruled from 19 to 38 cents lower. The average prices paid for American oil of late years have thus fluctuated:

1893	per 220 pounds	$13.67
1894	do	10.95
1895	do	9.28
1896	do	8.55
1897	do	8.03
1898	do	7.93
1899	do	8.61
1900	do	12.35
1901	do	11.17
1902	do	12.81

The striking progress of American edible oils in this market, as contrasted with former sales of industrial oils, appears in the following table of cotton-seed-oil imports at Marseilles:

Year.	Edible.	Industrial.	Total.
	Barrels.	*Barrels.*	*Barrels.*
1902	37,075	5,080	76,040
1901	123,486	39,736	188,736
1900	106,331	57,751	185,751
1899	91,306	158,171	269,106
1898	120,541	142,738	287,739

Stated in another manner, the total value of the American importation of 76,040 barrels of 1902 was $175,650, while the total value of the importation of 287,739 barrels in 1898 was but $404,453.

To counterbalance the short arrivals of American industrial oils, Marseilles received, during 1902, excessive supplies of soap-making as well as edible-oil-making materials. The figures follow:

Oleaginous-seed importations at Marseilles.

Article.	1902.	1901.	1900.
	Tons.	*Tons.*	*Tons.*
Cotton seed	22,394	23,132	13,126
Sesame seed	99,200	65,387	66,271
Arachides (peanuts):			
Shelled	107,656	61,136	23,847
Unshelled	64,132	74,866	81,655
Linseed	11,476	10,495	11,085
Rape seed and ravison	5,022	8,093	6,585
Poppy seed	3,975	3,516	3,938
Castor seed	26,214	25,931	15,942
Copra	87,348	85,259	103,734
Palm kernels	5.843	11,872	7,981
Mowrah, etc	5,955	13,518	1,772
Total	439,215	383,205	335,936

Practically all the increase last year in oil-making material came under the head of arachide and sesame seed, and the bulk of the arachides went into the soap trade, the unshelled nuts being 10,000 tons short; and as American cotton-seed oil was 122,000 barrels short, it is quite clear that, large as the olive crop was last year, the great difficulty was in the consuming market, which exercised its privilege of not buying at all. It is expected that the same thing will occur this year, and perhaps more strikingly, as the olive crop—last year excessive—is this year very short and bad in quality. Prospects point to an increase in the arrivals of sesame seed, and arachides will also come in heavily.

The high price of olive-oil foots is explained as the natural result of a fuller knowledge of a valuable product. The production of this oil by chemical reaction has been carried on for not more than fifteen years, and the material sold at a low range for several years because it could be had in annually increasing quantities and was considered a by-product. Now, the chemical reaction is employed everywhere, and the manufacture of foots can only increase materially with the olive crop. More important than this is the actively contested belief, put forward by some as an ascertained fact, that 100 pounds of foots will manufacture upward of 5 pounds more of soap than a like quantity of pressed oil. It is claimed that this method of manufacturing the foots gives the manufacturer of soap a fatty material without other ingredient, which the pressed oil does not. The supposed intrinsic value of the foots being in excess of that of oil, soap makers have naturally worked the prices up to high levels. Whether this idea of intrinsic value be illusory or not, the vital fact is that at this date foots are selling in Marseilles at $11.96 per 220 pounds, about $1.93 less than a corresponding grade of olive oil, and one buyer has gone so far as to intimate to me that the time might come when olive growers would find it advantageous to handle their entire crop by the chemical process, covering, in the lower cost of manufacture, the loss of the high grades of edible oil.

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *January 13, 1903.*

PRODUCTION OF COLORED COCOONS.

Messrs. Conte and Levrat have recently been making interesting experiments with silkworms, which have resulted, it is said, in the production of cocoons of varied shades.

The ordinary cocoon is white, yellow, or sometimes green. The question to be solved is why different colors should be produced by similar species, and whether it is the direct result of the food taken by the worm. If this coloring matter comes from the leaves fed to the worms, Messrs. Conte and Levrat considered that it should be easy to color their food artificially and thus secure different shades of cocoons, although several naturalists have attempted to prove the impossibility of coloring matter passing from the intestines of the worm into the silk-producing glands.

The worms which served for their experiments were placed on branches of privet washed over with red. They ate the leaves without prejudice; and when the larvæ began to spin the cocoon the silk was a bright red.

When fed on leaves colored blue, the silkworms produced a slightly bluish silk. The species that produces ordinarily a yellow cocoon, when fed upon leaves colored red, brings forth a deep orange. The original yellow, it is said, is due to the pigment in the leaves of the mulberry.

W. P. ATWELL,
Consul.

ROUBAIX, *January 13, 1903.*

SUGAR PRODUCTION IN SPAIN.

A comparative statement of the production of beets and beet sugar in Spain during the seasons 1901–2 and 1902–3 (from the commencement of the crushings up to December 31) has been made public by the department of customs at Madrid:

Description.	1901–2.	1902–3.
	Tons.	*Tons.*
Quantity of beets entered for crushing	520,438.9	599,728.9
Quantity of sugar warehoused	39,483	52,011.1

The production this season exceeds that of last year—in beets, by 79,290 tons; in sugar, by 12,528 tons. Under the total of "sugar warehoused" are included the quantities obtained from beets left over from previous seasons.

At the end of December, 1902, there were 48 beet-sugar factories in Spain, and I am told that there are several others under course of construction. The 48 mentioned are distributed as follows: Provinces of Alava, Almeria, Barcelona, Burgos, Cadiz, Cordova, Corunna, Lerida, Palencia, Pontevedra, Santander, Soria, and Valladolid, 1 each; Granada, 13; Leon, Malaga, and Navarra, 2 each; Oveido, 5; Madrid, 3; Saragossa, 8.

HARRY H. HALLATT,
Acting Vice-Consul.

MADRID, *January 12, 1903.*

AMERICAN FLOUR AND LARD IN MALTA.

FLOUR.

The demand for American flour and lard is increasing here, especially for the former. A year ago, I proved by statistics that there was a growing and permanent demand for flour, and predicted that 1902 would show a still further increase. That prediction has been fully borne out. Without doubt, this demand is due in a great measure to the fact that Malta now has direct communication with the United States. With the regular and frequent sailings in force, this year will show a still greater increase in Malta's imports of American goods. The following table of statistics for the years 1897–1902 tells the story, and one has but to consult it to see not only what we are doing, but also the increase or decrease of our rivals:

Imports of flour into Malta.

Place of export.	1897.	1898.	1899.	1900.	1901.	1902.
	Bags.	*Bags.*	*Bags.*	*Bags.*	*Bags.*	*Bags.*
New York			2,256	39,586	37,047	65,270
Liverpool	17,553	54,111	168,418	185,600	187,346	158,345
Marseilles	16,268	10,037	15,181	26,077	8,251	7,799
London	2,165	3,240	3,855	2,183	10,575	10,037
Newcastle-on-Tyne						2,200
Hamburg						1,147
Syracuse	27	760	1,765	1,596	5,544	500
Lisbon					12,862	
Manchester	10,899	26,206				
Trieste	268	1,742	1,495	637	1,373	
Total	47,180	96,096	192,970	255,679	262,998	245,298

From the above table, it will be seen that the United States supplied, during the year 1902, 65,270 bags, or 28,223 bags more than in the previous year. These figures, however, represent only the quantity arriving by steamers of the direct line. Much of the flour imported from Liverpool, London, and other ports (to which credit of origin is given) was really of American production, inasmuch as those ports were either used as places of transshipment or the flour was taken from stocks of American flour located there and shipped here on order. If it were possible to obtain the true amounts, I feel confident that the figures for the United States would be vastly larger. Our closest competitor, as will be seen, is England. The figures given for her contribution are decreasing. The total demand for the year 1902 was a shade smaller than for the previous year.

I can not too forcibly call the attention of our merchants to the advisability of sending goods here by the direct line. Vessels coming direct from the United States, as a rule, bring only American goods, while those bringing our goods from ports of transshipment are apt to bring an overwhelming percentage of products of other countries. This is a matter to be considered in the interest of increasing the demand for general lines of our goods, outside of the questions of delay, loss in rehandling, and freight charges. Merchants here understand our methods and requirements as regards terms of payment.

LARD.

In the matter of lard, I would say that Malta uses it extensively. No statistics are at present available to enable me to give the sources. During the year 1902, 16,117 buckets and 829 barrels were landed; 5,706 buckets came by the direct line from New York and were assuredly American. Of the 10,411 buckets remaining, it is safe to say that a very large proportion was American, coming from English ports by transshipment. Two-thirds of the vessels bringing lard to Malta were from English ports. From an investigation recently made in this line, I am convinced that the figures for next year will show a decided increase in the sale of lard direct from the United States. Our lard enjoys a prominence and popularity hardly reached by similar goods from other countries.

JOHN H. GROUT,
Consul.

VALLETTA, *January 12, 1903.*

AMERICAN AUTOMOBILES IN MALTA.

I have recently received applications from parties here for information with regard to the advantages of the American automobile. There are already several in use, and correspondence is now being carried on between probable purchasers and American makers. One gentleman recently went to England and, after looking at the various makes of machines there, ordered one of American origin, which is giving good satisfaction. This machine is of the steam variety, being the only one of its kind here. The others are operated by gasoline. One firm desires to secure large vans for delivery of goods. No fault is found with gasoline machines except that it is somewhat difficult at times to procure gasoline, on account of local laws. It is imported from New York and other places, but the supply is apt to be limited.

American manufacturers of automobiles should bear in mind that Malta does not possess, as a rule, long, level stretches of road. There are many steep hills—some of them having a grade of 1 in 9.

The machine should be much more powerful than is the rule in the United States. Another thing to be remembered is that, in giving price, the manufacturer must quote f. o. b. New York; otherwise, the inquirer will not know what his machine is going to cost him. People here know nothing about distances or freight rates between ports of shipment and our interior cities. Several negotiations have failed because the dealer in the United States insisted upon quoting prices f. o. b. Chicago or other place of export. When possible, it is even better to give prices c. i. f. Malta. In other words, when the buyer at Malta writes for terms, he should be given information which will enable him to figure exactly what the machine will cost him landed here. If information as to the cubic measurement of the machine as crated or boxed for shipment can be given, it will add to the satisfaction of the buyer. Some time ago, an American carriage manufactured in one of our interior cities was sold here, and, to my own knowledge, one of the greatest points considered was the completeness of the information given in the catalogue. I provided other catalogues, which were prepared in attractive style and showed desirable goods, but information as to terms, etc., was very meager and they were not considered. It must be remembered that transportation from New York to Malta is now ample by way of a direct line of steamers. My assortment of automobile catalogues is somewhat limited, and I should be pleased to receive such as manufacturers may see fit to send me.

JOHN H. GROUT,
Consul.

VALLETTA, *January 12, 1903.*

GERMAN EXPORTS TO MOROCCO.

A list of the main exports of Germany to Morocco was recently published in conjunction with an article upon the trade possibilities of that country. Morocco is a far more important market for foreign goods than is generally believed, according to the writer, and it will consume rapidly increasing quantities of imports in future, as the country is entering upon an era of industrial development. It is hardly necessary to call the attention of American manufacturers to the business principle that it is by far easier to gain and hold a market in a developing country than to force a position on ground already occupied by others. It is probably the countries that are in the babyhood of civilization as we know it that offer the richest fields and promise the greatest returns to the pioneer trader who courts the tastes of the inhabitants. It will therefore be of interest to note the nature of the articles which compose the present export trade of Germany to Morocco.

Among the textiles are found colored cloths, largely of pure wool and in color indigo blue and levantine. The English articles in this line have in late years been almost forced from the market by the cheaper German and Austrian cloths. Wool satin, of one color and with gloss finish, is supplied almost exclusively by the Saxon weaving centers—Gera and Greiz. Silk satin comes from Elberfeld, of one color, in width from 54 to 60 centimeters (21.2 to 21.8 inches). The main competitor is Lyons, France.

Sewing machines driven by hand are also imported to a large extent. It is important for the machines to be of good and durable construction, because it is reported to be practically impossible to obtain repairs in the country. Mirrors, darning needles, and sewing needles are supplied almost exclusively by Germany. Nails and wire come from Germany, with strong Belgian competition. Cheap ironware, locks, hooks, etc., are in demand. In enameled kitchen utensils, Germany controls the market. Cheap soaps come mainly from Germany, while the better qualities are said to come from France. Earthenware and crockery come mainly from Saargemund. The better qualities of tea glasses, with genuine gold decorations, come from Germany, and the cheaper kinds from Bohemia. Aniline colors come from Germany and France. Alcohol is sent from Germany and Austria. Potash for the manufacture of Dutch soap comes mainly from Germany. Cheap paper, including writing paper, is supplied by France, with considerable German competition. It is but recently that Hamburg has entered into competition in the exportation of tea, which is an important item. London alone sends annually from 15,000 to 20,000 chests to Morocco.

With the development of Morocco proceeding at an encouraging pace, it will not be amiss for the American exporter to keep an eye on that country and study its growing needs.

J. F. MONAGHAN,
Consul.

CHEMNITZ, *January 16, 1903.*

NEWSPAPERS IN GERMAN COLONIES.

For the benefit of Americans who may have a desire to keep informed as to the progress and development of the German colonies, the following list of papers may be useful:

Deutsch-Südwestafrikanische Zeitung; published in Swakopmund, Southwest Africa; weekly; costs $2.30 a year, and may be subscribed for by writing the publishers directly or applying to the Invalidenbank, Unter den Linden 24, Berlin.

Deutsch-Ostafrikanische Zeitung; appears in Dar-es-Salaam weekly and costs $4 a year. General agent for Germany is Georg Migge, Lützow Strasse 54, Berlin.

Deutsch-Asiatische Warte; published weekly in Tsintau, China. Subscriptions will be taken by the "Verlag des Berliner Aktionär," Linden Strasse 47, Berlin. Yearly subscription price is $3.50.

Ostasiatische Lloyd; published weekly in Shanghai and costs $2 annually. Representatives in Germany are same as for the Deutsch-Asiatische Warte.

Samoanische Zeitung; appears semimonthly in Apia and costs $3.25 per annum. Requests for subscriptions should be addressed direct to the publishers.

ERNEST L. HARRIS,
Commercial Agent.

EIBENSTOCK, *January 4, 1903.*

COTTON IN GERMAN EAST AFRICA.

The German Colonial Association has been watching with interest the success of the Russians in growing cotton in central Asia. It is stated that the economic committee of the German Colonial Association does not intend to confine its scope of operations to Togoland, but eastern Africa is also to receive attention. There are already cotton plantations at Kilimatinde, Tanga, Wilhelmstahl, Mandera, Kissorawe, Kilwa, Kilossa, and Bismarkburg, and primitive cotton-weaving mills at Wahmega, Kilimatinde, Rangwe-Urunger, and on the Tanganyika, which prove conclusively the possibility of cotton growing in this part of Africa. A tabulated statement by Dr. H. Maurer shows that the climatic conditions and the yearly rainfall do not differ essentially from those observed in the cotton-growing districts of the United States. The East African cotton enterprise is to be developed on broad lines by founding an agricultural school. It is said that the Government of East Africa, aided by some large German cotton-spinning companies, is willing to aid the enterprise financially. It has also been suggested, I am informed, that the Tuskegee School be drawn upon for well-posted colored people to help the work.

OLIVER J. D. HUGHES,
Consul-General.

COBURG, *January 20, 1903.*

FRENCH CULTIVATION OF COTTON IN AFRICA.

Following the example of their British and German competitors, spinners, merchants, and others interested in the French cotton trade have recently formed a society for the encouragement of the cultivation of cotton in the French colonies. It is called the "Association Cotonnière Coloniale," with headquarters in Paris. It is to be an essentially French organization, as no one but a French citizen is eligible for membership. The aims of the new society, as set forth in its statutes, are:

1. The study and development of the cultivation of cotton in all its forms in the French colonies.

2. To encourage the purchase and use of cotton grown in those colonies by the cotton industries of France.

It proposes to accomplish its object principally by investigations and missions, by meetings and lectures, by the medium of the press, and by the publication of pertinent literature. It also intends to grant subsidies to those who will make experiments in the cultivation of cotton in the French colonies, and will conduct similar trials itself.

There are four classes of membership:

1. Membres fondateurs-donateurs, whose annual subscription is 1,000 francs ($193).

2. Membres-fondateurs, with annual dues of 300 francs ($57.90).

3. Membres titulaires, with annual subscription of 100 francs ($19.30).

4. Membres adhérants, who pay 50 francs ($9.65) yearly. The latter members are not entitled to any participation in the management of the association.

The following are extracts from a circular letter which accompanies the prospectus of the new company:

> In view of the ever-increasing tendency on the part of the United States to monopolize everything, with the undisguised motive of becoming master of the Old World by the power of production and the strength of capital, it is only natural that the following question should be asked in Europe: Do the Americans hope, one of these days, to corner their entire production of cotton for the exclusive benefit of their cotton industries, or, without profiting entirely by the situation, will they not impose duties on the exportation of the raw material?
>
> The world's cotton crop is estimated to be 14,000,000 bales of 500 pounds each. Of this amount, the United States produces the enormous quantity of 10,500,000 bales, or more than three-fourths. On account of this condition of affairs, the Americans pretend, as a number of articles in the newspapers will bear testimony, that being the holders of the raw material, they should transform it into the finished product to supply the demands of the entire world. It appears that they have deliberately set out to do this, when one realizes the prodigious development

which has taken place in their cotton industries. In support of this statement, we can cite the project of construction of a monster cotton mill in the environs of St. Louis, which will have not less than 12,000 looms and 500,000 shuttles. The output of this plant alone would equal one-tenth of the total production of France. New establishments are being constantly erected alongside of the cotton fields, under particularly favorable conditions, to such an extent that the Northern cotton spinners have already commenced to feel the competition of their Southern compatriots.

Owing to the wonderful strides of the American cotton industry, the consumption of the raw staple in the United States, which in 1892–93 was 2,422,000 bales, has increased to 3,908,000 bales in 1901–2, an augmentation of 61 per cent in ten years.

It is to be feared that the Americans some day or other hope to utilize their entire production of cotton in their own cotton industries. They would necessarily be compelled to find foreign outlets for the sale of the finished products, as, notwithstanding the great increase in their population, the local demands for consumption would not keep pace with the increase in the output.

Besides, ought we not to put a stop to the speculative operations of the Americans, which, during the cotton season, disturb our markets and render transactions exceedingly difficult?

Russia was the first to recognize this condition of affairs. For fifteen years that nation has encouraged the cultivation of cotton in Turkestan, and that she has succeeded will be shown by the following statistics: In 1888–89, the cotton crop was 76,000 bales of 500 pounds each, while the estimated production for 1902–3 will be 504,000 bales.

England, for several years, has sought to develop the production of cotton in Egypt, where not only the area under cultivation has been increased, but the average production per unit of surface has been considerably raised. From 1889 to 1898 the Egyptian cotton crop has risen from 300,000,000 of Egyptian pounds to 600,000,000—or, in other words, has doubled in ten years.

In India efforts were also made to increase the cotton production and to improve the quality of the staple, but, not meeting with unqualified success, England is seeking other centers of production. For this purpose the English cotton spinners and merchants have formed an association, with a capital of $241,250, which has already commenced its labors in Lagos.*

The Germans have also formed a society, with a capital of $178,500, to encourage the development of the culture of cotton in their African colonies, and their first efforts have been made toward the Togo.

Is it not time, then, for France to follow in the footsteps of England and Germany? She has all the more reason to do so, for she not only possesses territory which borders on that of Germany and England, but she owns other regions which are admirably adapted to the cultivation of cotton—like the Sudan.

All those who are capable of giving an expert opinion whom we have consulted—men such as the inspector-general of agriculture for the colonies, the former governor of Sudan, the governor-general of Africa, etc.—are unanimous in declaring that this country (Sudan), in which cotton grows wild and is even cultivated by the natives, is destined to become an important cotton center.

The means of communication by the Niger, by railroad, and by the Senegal River are being improved, and they are the object of the particular attention of the new governor-general.

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* In one of the daily cotton bulletins published at Havre, dated January 19 last, it is stated that the English association has been advised of the receipt in London of 26 bales of cotton, grown and picked on the frontiers of the Côte d'Or, near German Togoland. This cotton has been estimated at 5d. to 5¼d. (10 to 10.6 cents) per pound—about equal to good middling Texas.

> The Sudan, among our colonies, appears to be that which offers the greatest probabilities of success; but our other colonies, such as Guinea, Ivory Coast, Dahomey, and Madagascar, should also be studied by the society. * * *

The new association held its first general meeting in Paris on January 16 last, at which the statutes were definitely approved, preliminary business transacted, and 10,000 francs ($1,930) were appropriated to make an experiment in growing cotton in the region of Dienné. It is estimated that up to the present time nearly 200 members have joined the new company, whose subscriptions would be 300,000 francs ($57,900) in six years.

Captain L'Enfant, of the French colonial artillery, who has just returned from Africa, where he had been sent on an official mission by the French Government to study the existing conditions of the Lower Niger, in a recent lecture gave some interesting information regarding the culture of cotton in the Sudan. In his opinion, the River Niger region could be divided into two sections—that of the River Djoliba and that of the River Issaber. The freshets in the River Djoliba cause it to overflow its banks, inundating the country and leaving behind a mud which renders the land very fertile. Cotton sown in June grows until September and October, the flowering taking place about October 15. At this date the rains cease, but at night there are heavy fogs, which deposit a considerable amount of moisture. Toward November 15, the flower opens and the native blacks pick the cotton.

In the Issaber section the rise is not so great, being the natural repercussion of that of the Djoliba. In January, at Gao, the river is at its highest. At this place there are several cotton plantations, one of which is an experimental station under the management of Dr. Mengen. The cotton is usually sown in January; it grows rapidly until March, when, the dry season setting in, the growth is retarded. It commences again in May, and the staple is picked in July. Captain L'Enfant is under the impression that cotton sown in May at Gao would ripen and could be picked in October or November. Irrigation is accomplished by hand. Attempts have already been made to export cotton from the Sudan. It was brought in boats from Sekon to Koulikoro, but in this portion of the journey the cotton was badly damaged by water.

From Koulikoro the transportation was very difficult and costly, and if a trade of any commercial importance is to be established the means of communication would have to be greatly improved. The lecturer said that cotton can be bought in the Sudan for 9 cents per pound; at Senegal the prices range from 3.5 cents to 4.4 cents per pound. If the cost of water transportation to Koulikoro, the rail or river freight from Kaye to Dakar, and the freight from Dakar to

Bordeaux were added, Sudanese cotton can be delivered at the latter port for about 6.5 cents per pound. As the lecturer gave no information as to the quality of the cotton to which he referred, no comparison can be made with the standard American types.

It may be interesting, in this connection, to give the results of an expert examination of samples of Sudan cotton which were sent to the Chamber of Commerce of Havre in April, 1898, by the Minister of Colonies. The Minister in his letter says, in part:

> The cotton plant grows in a wild state in the colony [Sudan], but it produces a staple of an inferior quality. At my orders, experiments were made with seeds from other countries to determine whether they could be acclimated. The samples I send you are the results of the first trials.

The estimated prices given in the report of the experts chosen by the "Syndicat du Commerce des Cotons," to whom the samples were referred, are for 50 kilograms (110.23 pounds), and are compared with the price quoted April 28, 1898, for "very ordinary New Orleans," 45.25 francs ($8.73). The samples submitted were so small and the information accompanying them so meager that it was found difficult to give an intelligent report, but the results of the examination were the following:

Marks.	Condition.	Estimated price per 50 kilograms.*
Garden of the Kade	So-called long staple; staple very short and soft; coarse reddish color.	$7.33 to $7.72
Nioro.	Cotton in its natural state, not ginned; long, fine, and wavy staple; waste, 75 per cent; value, ginned and cleaned.	10.62 to 11.58
St. Louis	Not ginned, waste, 70 per cent; short staple; value, ginned.	8.68
Native cotton of the Sudan.	Not ginned; white; very short staple; waste, 70 per cent; value ginned.	6.75
Quadia (American seed).	Cotton in natural state, not ginned; waste, 70 per cent; staple finer, longer, and more wavy, but irregular; value, ginned and cleaned.	9.65 to 10.62
Moubougisi (French cotton).	Not ginned; staple long, firm, and strong; value ginned.	11.58
Goundiouron (Sea Island seed).	Cleaned by hand; very fine, long, wavy staple	12.93 to 13.51
Goundiouron	Long staple; very beautiful and clean	11.58 to 12.55
Bafoulabé	Ginned by hand; long staple; quite strong; yellowish color.	9.65 to 10.62
Do	Ginned by hand; long, soft staple; yellowish color	8.69 to 9.65
Fama, from Sansunding.	Not ginned; waste, 70 per cent; long, irregular staple; value, ginned.	10.62 to 11.50
Sansunding, native	Very white; short staple; like linters	5.40 to 5.79
Sansunding, Georgia	Appears to be cotton hand ginned; long staple; very wavy.	10.62 to 11.58
Siguri:		
Native cotton	Carded; very fine and clear; without waste; short staple.	8.11
Virginia seed	Cleaner than the above; staple longer	8.69
Cercle des Rays (native seed).	Very fine and clear; long staple; appears to be cleaned by hand; staple a little soft.	12.93 to 13.51

* 50 kilograms = 110.23 pounds.

In the opinion of the experts some of the samples appear to be similar to "rough Peruvian" cotton, which leads them to believe that seeds from Peru would grow well in the Sudan.

According to a report made to the committee on the French budget of 1903 of the Chamber of Deputies, there were 1,000 miles of railroad projected in Indo-China, of which about 219 miles were in operation. In the French India possessions there are 37½ miles of railroad in the region of Pondicherry and of Karikal. In Senegal there is the old road from Dakar to St. Louis; in Sudan, that from Kayes to the Niger; and recently in Dahomey the line from the coast into the interior has been opened for 53½ miles. The railroad from Tananarivo to Tamatave is in operation for 20 miles. In Reunion there is the belt road, and the line from Djibouti to Addis-Harrar is in course of construction. Guinea has 10 miles of railroad. In other words, there are 937½ miles of railroad in the various French colonies, not including Algeria and Tunis.

Taking into consideration the present condition of the transportation facilities in the regions of Africa where cotton will grow to advantage, it will be many years before the production of the African staple will seriously affect the markets of American cotton.

A. M. THACKARA,
Consul.

HAVRE, *January 29, 1903.*

COTTON GROWING IN BRITISH WEST AFRICA.

The Department has been informed by Consul-General H. Clay Evans, of London, under date of February 2, and Consul Marshal Halstead, of Birmingham, under date of January 29, 1903, that at a recent meeting of the British Cotton-Growing Association at Manchester it was officially announced that through the influence of Mr. Chamberlain, the Colonial Secretary, the West African railways would give free carriage to cotton for two years, and that the shipping companies were willing to carry the first 1,000 tons of cotton without charge for freight. The association wished, it was declared, to grow cotton in the West Indies as well as in Africa, and the hope was expressed that it would not be long before they were weaving cotton in Lancashire grown in Jamaica.

The following additional data have been received from Consul W. P. Atwell, of Roubaix:

There is a strong current of public opinion in Europe at present in favor of developing the culture of cotton in the colonies of the different countries, notably in the dependencies of England, Germany, and France. Although England receives large supplies from Egypt and India, at least five-sixths of the raw material used in Lancashire comes from the United States. The manufacturers and shippers of Lancashire have founded a society known as the "British Cotton-Growing Association," which is sending missions to study the growth of cotton in different soils, to procure the best seeds, and to distribute these to colonial natives. The capital is $250,000, $100,000 having already been subscribed. Experiments are now being made wherever British rule extends—in Egypt, the Egyptian Sudan, India, the Oceanic Islands, Uganda, East Africa, and more particularly in West Africa at Sierra Leone, Lagos, and the Lower Niger.

TRADE AT BEIRA.

There has been a very marked decrease in the trade returns for the port of Beira, but, as American goods are not specified in the official statistics, it is impossible to tell whether the amount of these imports has also fallen off.

This decline, however, was naturally to be expected, in view of the fact that the returns of the previous year were inflated by figures representing the value of the stores and equipment of the Rhodesian field force, which passed through here.

The chief imports from the United States are canned meats, fruits—both canned and dried—kerosene oil, doors, and windows.

RAILWAY.

A railway* now runs through the Mozambique Company's territory and connects the principal towns in southern Rhodesia with the sea. Macaquece, the border town between Portuguese territory and the British South Africa Company's dominions, and the center of the gold-bearing region of the Mozambique Company's territory, has been coming to the front lately. Great activity has been shown in that community, in comparison with former years, and this is mainly due to the publication of new mining regulations, which have given claim holders more confidence.

MINING REGULATIONS.

Under the new regulations, the reef claims include 100 meters along the reef and 200 meters in breadth.

The rent for claims for the first year is nil; after that, 10s. ($2.43), increasing to 50s. ($12.16), per claim per annum is charged.

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* Traffic return annexed.

Companies floated on mining properties must pay the Mozambique Company either 10 per cent of their nominal capital or 20 per cent of the venders' shares fully paid up.

CUSTOMS DUTIES.

During the year all customs duties, except those imposed upon liquors and tobacco (which remain the same), were reduced to 5 per cent ad valorem.

SHIPPING.

The greater part of the cargo shipped to this port and destined for southern Rhodesia has, for the last two years, been carried by steamers of the Deutsch-Ost-Afrika Linie. This company has a fixed schedule on which its steamers run punctually from Hamburg. The company also has its own landing plant and is the only carrier that holds itself liable for goods from ship to shore; consequently, little difficulty is experienced with regard to the collection of claims for damaged packages.

The increase in the cargo carried by German steamers during the past year, to the detriment of British shipping, is enormous, as the following figures show:

Description.	Passengers.	Cargo.
		Tons.
British ships	1,081	4,403
German ships	2,590	10,163

The only regular British line calling at Beira is the Aberdine Line—two small coasting steamers of which touch here once every two weeks on their way to Chinde from Durban.

BANKING.

The principal South African banks have branches in Beira, namely, the Standard Bank of South Africa, the Bank of Africa, and the African Banking Corporation.

HEALTH.

In spite of its bad reputation, I believe that Beira is as healthful as any other town on the east coast in the Tropics. Residents may live here without contracting malaria, provided they keep in the town during the wet season. The surrounding country is very malarious, especially from January to May. The principal diseases here are malarial fever, dysentery, and diarrhea.

A. W. H. GLENNY,
Consular Agent.

BEIRA, *December 3, 1902.*

Traffic return of the Beira and Mashonaland Railway for the ten months ended December 31, 1901.

Passengers:		
First class	number	1,068
Second class	do	2,943
Third class	do	5,978
Natives	do	7,756
Freight:		
General goods	tons	25,839
Railroad and construction material	do	29,328
Minerals	do	275

THE NILE RESERVOIR.

The Assouan Dam has been completed and was formally opened on December 10, 1902. This date will be memorable in Egypt's history, for as long as the Nile continues to flow the great dam will remain as a proof of nineteenth-century enterprise. The boldness of the idea and the thoroughness of the undertaking rank with anything that has ever been done in this land of titanic achievements. It may indeed be doubted whether any of the great works of Egypt have had so beneficent an effect on this country as will this great engineering triumph.

As Egypt's prosperity depends on agriculture, and agriculture on the Nile, the importance of the new system of irrigation can not be overestimated. Besides increasing the acreage from 12 to 15 per cent, it is expected to double the number of crops each year on land now under cultivation. The effect upon the cotton industry is estimated at 25 per cent increase.

The dam is 1¼ miles in length, is 22 feet wide at the top, and has a parapet 3 feet in height running the whole length. Its maximum width at the bottom is 100 feet and the maximum height 130 feet. The height of the water held up when the reservoir is full will be 67 feet. The capacity of the reservoir is 1,000,000,000 tons. The total weight of the masonry is over 1,000,000 tons. The discharge of the Nile during full flood is 15,000 tons per second, or 54,000,000 tons per hour, when all the sluices are open.

There are 180 sluices, 140 of which are 23 feet high by 6 feet 6 inches and the balance 11 feet 6 inches by 6 feet 6 inches. The following are some of the materials used in the work: Over 74,000 tons of Portland cement; 28,000 tons of coal; 114 tons of nitroglycerin explosives, principally gelignite; 790,000 sextuple detonators; 97,000 pounds of blasting powder; 230,000 coils, or 5,520,000 linear feet, of safety fuse; 200 tons of octagon steel for drills and chisels; and 1,750,000 gunny bags.

The huge gantry, which extended across the main channels, used 72,000 cubic feet of timber in the shape of trestles and longitudinals and 88,500 square feet of 2-inch flooring. This flooring had to be stripped off before each flood and relaid the following year for the season's work.

In addition to the various offices, workshops, lime and brick kilns, cement sheds, and magazines, the following buildings were erected: Hospital wards, with dispensaries and residences for the staff of doctors and nurses; large central general-provision store, with bakeries and restaurants and many branches at various parts of the works; a steam flour mill; police station, with quarters for the police; post and telegraph offices, with quarters for the respective staffs; church for the Italian workmen; quarters for about 160 men on contractor's staff, foremen, and the English mechanics; quarters for 1,600 Italian stonecutters, masons, etc.; many large shelters for native workmen; and the necessary offices for the Government engineers, inspectors, etc.

The water supply for the works was provided by a great tank excavated out of the solid rock on one of the highest hills on the east bank. This water was obtained by means of steam pumps fixed in the current of the Nile. Mains from this tank were laid all over the works, with services to the houses, baths, etc., each house being fitted with a Berkefeld-pressure filter, which insured pure water for drinking purposes.

The contract for the work was signed February, 1898, and the work was begun the next April. The time specified by the contract was five years, and, although the labor was very considerably increased, owing to the extra depth of foundation, the work has been completed in four years.

The maximum number of men employed at one time was 12,000, of whom 1,000 were Europeans. They worked ten hours daily the year round. The following items give a slight idea of the colossal proportions of the work:

Temporary railways consisted of 22 miles of track and sidings, 4 feet 8½ inches gauge. Most of this had to be taken up and relaid three times, on account of the rise of the Nile and also to suit the works. About 3 miles of this track (that part between the works and Shellal station) was laid to a mixed gauge in order to deal with the traffic from the Luxor-Assouan line, over which all the supplies for the work came. That gauge is 3 feet 6 inches. There were also 6 miles of 2-foot-gauge portable railways and 149 wagons and trolleys for this line.

There were 10 locomotives and 394 ballast trucks and stone trolleys of 4 feet 8½ inches gauge. The number of steam cranes was

35, of which 26 were 4-ton locomotive cranes. The hand cranes numbered 40, of different sizes, up to 7 tons. The portable engines numbered 9, from 12 to 16 horsepower. There were 49 steam pumps of all kinds, from 3 inches to 12 inches.

The river craft consisted of 2 steam tugs, 1 steam launch, 5 iron lighters, and a great number of native feluccas. There were also 1 brick-making machine, 1 electric-light plant, a circular saw driven by steam, 2 sets of diving gear, a telephone installation, 2 sets of ice-making plants, and 1 soda-water and bottling machine.

JOHN G. LONG,
Consul-General.

CAIRO, *December 30, 1902.*

PEPPER CULTIVATION IN INDIA.

The pepper plant—*Piper nigrum*—which produces the white and black pepper of commerce, is a climbing, vinelike shrub, found growing wild in the forests of Travancore and the Malabar coast of India.

It is extensively cultivated in Southwest India, whence it has been introduced into Java, Sumatra, Borneo, the Malay Peninsula, Siam, the Philippines, and the West Indies.

The use of pepper was known to the ancient Greeks and Romans as early as the time of Alexander the Great, and at one time occupied an important place in the world's traffic, being a staple article of commerce in the early trade between Europe and India before the days of cotton, tea, and sugar. The price of this spice during the Middle Ages was exorbitantly high, and its excessive cost is said to have been one of the inducements which led the early Portuguese navigators to seek a sea route to India.

Pepper is entirely tropical in its requirements, and seems to thrive best in a moist, hot climate, with an annual rainfall of at least 100 inches and a soil rich in leaf mold.

The plant is a natural climber and will cling to almost any support by means of adventitious roots. It grows some 20 feet in height, but in cultivation is usually restricted to 10 or 12 feet. The native Kanarese, in the gardens of the southern district of the Bombay presidency, train the pepper vine to the "supari" palms.

The leaves are glossy, broadly ovate, with five to seven nerves, and grow opposite and alternate to a pendulus spike 5 to 8 inches long, containing 20 to 30 white flowers that ripen into a one-seeded fruit, with a fleshy exterior. This fleshy berry, covering a soft stone, is about the size of a pea, and is at first green, but in ripening turns red and then yellow.

The berry contains a resin, to which it owes its hot, pungent taste, and a volatile oil that gives off an aromatic scent. It has few medicinal qualities, its principal use being as a condiment.

The white pepper is the black pepper decorticated by maceration and rubbing. The plant produces fruit in three years, and is probably at its best for the next seven or eight years. It is claimed that there is a difference between the plant grown from the seed and the one raised from cuttings, the former bearing fruit for several years longer than the latter, though the pepper from the plant raised from cuttings is said to be superior in both quality and quantity, and hence this method is more frequently adopted.

A single palm or tree sometimes supports 8 or 12 vines, giving an average annual yield in good seasons of about 1,000 berry spikes to the vines on one palm. These spikes or clusters of berries vary in size, but 1,000 should yield on an average 5 pounds of dried pepper. An acre is reckoned to bear 2,500 plants, to cost about $20 in outlay, and to yield a product of $400 when in its best condition.

Mr. J. W. Mollison, director of agriculture at Poona, gives in a very interesting paper an account of the cultivation of pepper in the Kanara gardens of the Bombay presidency. Of the two ways of propagating the plant—by layering or from cuttings—he claims the former is preferable.

When the palms have been seven or eight years permanently planted, pepper is planted at the roots of the trees. If a long, healthy vine from an established plant can be stretched to reach the root of the palm, this vine is layered in the leaf-mold manure which surrounds the root of the palm. The pepper vine takes root freely in this manure, and when it has done so it is severed from the parent vine and trained on the palm stem.

The young pepper plant grows rapidly. The main vine should branch freely into subordinate vines so that a number can be trained up the palm. They are fully secured to the stem by bands stripped from the sheaths of the fallen leaves of the palm. The main and subordinate vines grow up the tree to a height of 5 feet or more per annum. Luxuriant growth and free branchings are encouraged by heavy applications of good manure given annually for three years after planting.

Subsequently, the pepper plant participates in the general cultivation given to the palms, and an application of manure is given for both crops every second year. The best manure for pepper, supari palm, and all other crops of the garden is made from green leaves plucked or pruned in the monsoon and used as litter in the byres where buffaloes and other cattle stand, and thence removed to a deep manure pit every day with the excrement of the cattle. This manure is sufficiently decayed by the following March, and is applied in that month or in April.

The foliage of healthy plants is, from the ground upward, fairly dense, but in an established plantation some of the older vines die. If new layers are substituted for old and worn-out vines, the plantation should keep in vigorous growth and bearing for a long period.

The flowers appear in July and August and the berries about seven months later. The yield depends upon liberality in manuring, upon proper management, and upon the rainfall.

The plant, the flowers, and the fruit are delicate, in the sense that they may be damaged by rough handling; therefore, ladders are used when the vines are bound to the palms and the berries plucked. The ladders are straight, single bamboos, with the alternate side branches cut off a foot from the stem. These provide the steps of the ladder. A wooden hook is rigidly attached at the top end of the ladder and secured to the palm above the level of the tallest pepper plants.

The bunches are plucked by hand and placed in an oblong cane basket, slung horizontally behind the workman by a rope around his waist. The rounded ends of the basket extend a little on either side, so that the basket can be easily filled by either hand of the workman.

When plucked, all the berries in the bunch may be fully ripe, but ordinarily the bunches are plucked when the berries are mostly green and just changing in color. The berries may or may not be sorted as they are plucked. If they are sorted, those fully ripe are separated. These are soaked in water for seven or eight days or heaped, so that the pulp ferments, and are then rubbed by hand or on a coarse cloth if the quantity is small, or trampled under foot if the quantity is large. The pulp is thus rubbed off the inner stone. This stone furnishes the white pepper of commerce. The pulp is completely removed by washing in baskets in running water. The pepper is then dried by exposure to the sun for about a week. This has also a bleaching effect, and the pepper becomes pale gray or pale drab in color. It can be bleached whiter by a chemical agency. This white pepper is prepared only to a limited extent in the Kanara forests.

The chief product is black pepper. It is got from unsorted berries, which are heaped up for four days. The green berries then get softer and change color, and the pulp of all is more or less squashed. The berries are then spread out and dried. The skin and part of the pulp adhere as a dark-colored, dry, wrinkled covering to the stones, and the pepper is black in appearance.

White pepper is less pungent and more expensive than black, but is preferred by many from its not being readily seen in the food.

The pepper produced on the Malabar coast of India stands high in grade and brings the best price in commerce.

I have not at hand sufficient data to determine even approximately the quantity of pepper produced in southern India. It is certainly a very large and important product. The natives use it freely to season their rice and curry, and no doubt as much is consumed locally as is exported.

During the year ended March 31, 1902, there was exported from Bombay to Indian ports, such as Calcutta, Madras, Rangoon, Karachi, and to Kathiawar, Portuguese Goa, Kutch, Gaekwar State, and other British and native states in India, 3,163,826 pounds of pepper of a value of $343,805.

During the same period there was exported from Bombay to foreign countries 2,487,883 pounds of pepper, valued at $277,914.

The total of the coastwise and foreign exportation of pepper shows a production above the supply for local consumption of 5,651,709 pounds of a value of $621,719.

It may be of interest to state that of the exports Egypt took 608,000 pounds; Aden (and Arabia), 767,000 pounds; Persia and Asiatic Turkey, 800,600 pounds—or of all the pepper exported from Bombay to foreign countries, about 90 per cent was consumed by the four countries named.

WM. THOS. FEE,
Consul.

BOMBAY, *January 3, 1903.*

MOTHER-OF-PEARL-SHELL INDUSTRY.

Vice-Consul-General Thomas Davidson transmits from Singapore, December 6, 1902, copy of a report compiled for the Commercial Museum, at Manila, on the mother-of-pearl-shell industry, carried on principally in Australian and other southern waters and controlled from Singapore.

It is generally reported, he adds, that valuable shells abound in Philippine waters, and a large and lucrative business in these products may be built up in our new territory. The report follows:

GENERAL REMARKS.

The industry, as it is now known, was founded in Thursday Island, North Queensland, nearly thirty years ago, a certain Mr. Jardine, who still resides near the island and continues to hold interest in pearl fisheries, being the pioneer.

While employing Australian natives for the collection of sea slug—better known as "bèche de mer"—Mr. Jardine came across quantities of large pearl oysters on that coast, and, having no knowledge of their value, shipped a small quantity to Sydney for a report. The reply he promptly received was to abandon the bèche de mer and center all his energies on the collection of the shell. In carrying out these instructions, difficulties arose. It was soon discovered that to procure the shell in quantities was impossible with the means at hand, owing to the depth of the water in which the oyster existed. An attempt was finally made with an "air pump," the diver going down with only the helmet and receiving the air through a tube. By this means, he was able to remain on the bottom sufficiently long to collect a small bag of shell.

Singapore has been from that time the center for labor and supplies of every description, being the nearest and cheapest port of call for all the necessaries of the industry. It is also an excellent market for the shell, and more pearls probably change hands here than in any other place in the world, large quantities being purchased for the Chinese market, where there is a great demand for second-class pearls.

This report refers entirely to the shell known in the market as "mother-of-pearl," a large oyster varying from 6 to 15 inches or more in diameter and weighing from 2½ to 10 pounds, known to exist only in the waters of Thursday Island, along North Queensland, West Australia, Burma, New Guinea, the Philippines, and the Arafua Sea.

A small oyster, very productive in pearls, is found on the pearl banks of Ceylon, but is only caught for its pearls, the shell being of no marketable value. Other grounds productive of small shells are the Persian Gulf, Shark's Bay, Egypt, and (a few) Japan, but none are classed in the market with those above described. A black-edged shell, resembling in every way the one referred to, is found in New Caledonia and Tahiti. The Fiji Islands are also productive of shell, but are not much worked.

PLANT.

Small vessels of from 12 to 15 tons have proved the most convenient; they are rigged fore and aft and are decked over, except a hatch 6 by 4 feet in the center. The pump is firmly fixed on the bottom floor, the top being level with the top of the hatch. One boat can only work one pump. In cases where a pearler has one boat, only sufficient room will be found for the storage of shell of one month's work (this should average three-fourths of a ton), but a plant of two or more boats has generally a schooner of from 30 to 75 tons as a storeship for shell and provisions, etc. On board this schooner the shell is opened, cleaned, and packed for the

London market, each diver usually giving in his portion every evening. The schooner follows the boats.

Crew.—A boat's crew consists of the diver, his attendant—better known as tender—and four sailors. The work of the tender is solely to attend to the diver and the gear. The sailors man the boat and work the pumps. The diver always selects his own tender. An interference on the part of the employer in this should be avoided, as the slightest neglect of signals might cause serious consequences. He is always paid by results. The best divers are Japanese; but Filipinos are also good, and Malays find employment.

Method of supplying air.—The pumps used have a rotary motion and have three chambers. The upstroke draws the air into the chambers and the downstroke presses it into a strong rubber pipe, which is fastened to the pump on deck and to the helmet on the man below, he being able to regulate the air valve himself. Great care is necessary that the men working the pump do not become negligent, and special caution is needed to see that the rubber pipes and dresses are kept in good condition.

Gear.—The very best of gear should be used, inferior quality involving loss of time and consequently loss of shell. A dress lasts about four months with constant use; but using it alternately with another means economy. The rubber piping will last about three years if carefully cleaned and dried after use. A pump, with care, will be good for many years.

COLLECTION OF SHELL.

The diver takes with him a bag of coir rope one-fourth of an inch in diameter, made in large meshes, that, while suited for holding the shell, does not impede his traveling along the bottom. When the bag is full he signals, and an empty bag is sent down and the full one sent up. When the shell is found in depths of water varying from 8 to 15 fathoms, the diver goes on for two or more hours; but at greater depths than this he can not remain on the bottom more than about fifteen minutes, as the pressure of water from the outside and of the air inside the dress averages at 20 fathoms 60 to 65 pounds to the square inch, and soon causes paralysis.

To lessen the work of searching, the variety of bottom can be ascertained by casting the lead with either soap or tallow stuck on the end.

THE HOME OF THE MOTHER-OF-PEARL SHELL.

Mother-of-pearl shell is generally found in strong currents and narrow channels between groups of islands. It lies on hard bottom; mud or sand being unproductive. A rocky or stone bottom is a good indication, and clay and sand are also productive when accompanied with sea grass or shaded seaweeds; but if no sponge or vegetable substance is noticed on the soap on the casting of the lead, the prospects of shell are poor.

DESCRIPTION OF SHELL.

Mother-of-pearl shell are classed under different heads and sorted for sale accordingly.

1. Bold; a very thick shell; price, £120 to £150 ($584 to $730).
2. Bold to medium; a medium thickness and fairly fine in quality; price, £100 to £120 ($486 to $584).
3. Bold to fine; thick, clean, and of good color; price, £120 to £160 ($584 to $778).
4. Chicken; thin, fine, of good color, and without defect; price, £130 to £200 ($632 to $973).
5. Grubby; much eaten at the back by grub; generally thick shell; price, £80 to £100 ($389 to $486).
6. Silver lip; all pure white luster.
7. Gold lip; white center and yellow edge.

The shells are sent to London and sold at bimonthly auctions, finding their way ultimately to Sheffield for knife handles, and to other places. A quantity is purchased for the American markets.

The average value of pearls to the ton of shell is calculated at £40 ($194), but much more can be realized with good judgment in cleaning and sorting. A large quantity of "baruck" (irregularly shaped pearls) can often, by careful manipulation, be made of the best shape.

CAPITAL REQUIRED FOR PLANT.

The cost of a plant with one boat is about £540 ($2,628); of two boats, with schooner, £1,480 ($7,200); three boats and schooner, £2,020 ($9,830). I give below the average return:

Expenditures.

Description.	Amount.		
One boat.			
Wages per month:	£	s.	
Divers	4	0	$19.46
Tender	3	0	14.60
Crew (4)	10	0	48.66
Provisions:			
Diver and tender	2	10	12.16
Crew	5	0	24.33
Extras	5	0	24.33
Freight on shell to London	2	10	12.16
Commission on sale of shell	5	0	24.33
London brokerage and wharfage fees	2	10	12.16
Interest on capital	5	0	24.33
Wear and tear	10	0	48.66
Commission on three-fourths of a ton of shell	14	0	68.13
Total	68	10	333.31

Expenditures—Continued.

Description.	Amount.		
Two boats.	£	s.	
2 boats as above	109	0	$530.45
Loan of room in schooner	10	0	48.66
Commission on 1½ tons of shells	28	0	136.26
Total	147	0	715.37
Three boats.			
3 boats as above	163	10	795.67
8 men for schooner crew	25	0	121.66
Captain's wages	10	0	48.66
Provisions:			
Captain	4	0	19.46
Crew	10	0	48.66
Interest on cost of schooner, etc.	7	10	36.50
Sundries	10	0	48.66
Commission on 2¼ tons of shells	42	0	240.39
Total	272	0	1,323.69
Four boats.			
4 boats as above	284	10	1,384.51
Commission on 3 tons of shells	56	0	272.52
Total	340	0	1,654.61
Five boats.			
5 boats as above	339	0	1,649.74
Commission on 3¼ tons of shells	68	0	330.92
Total	407	0	1,980.67

Receipts.

Description.	Amount.		
One boat.	£	s.	
Three-fourths of a ton of shell (average)	97	10	$474.48
Average value of pearls	127	10	620.48
Total	225	0	1,094.96
Two boats.			
Shell and pearls for 2 boats	255	0	1,240.96
Three boats.			
Shell and pearls for 3 boats	382	0	1,859.00
Four boats.			
Shell for 4 boats	510	0	2,481.92
Five boats.			
Shell and pearls for 5 boats	637	1	3,100.20

PHILIPPINES.

The fisheries have not hitherto been worked with the diving apparatus, but in spite of the primitive methods in use the average quantity of shell brought to Singapore from the islands can not be less than 150 tons in a season.

The waters are particularly clear and the shell is of the finest quality. The pearls are more regular in shape than those of most grounds. Manila shell is quoted at the top of the trade lists, having reached £12 ($58) per cwt.

PROPOSED CURRENCY CHANGES IN THE STRAITS SETTLEMENTS.

The burning question of the hour in this and neighboring districts is undoubtedly that relating to the currency.

As soon as it became known here that a commission had been appointed in England with a view to fixing a stable currency for Singapore and the Straits Settlements on lines somewhat similar to that which changed the Indian monetary standard a few years ago, the press took up the subject. Siam, which had apparently been making preparations for the event for some time past, immediately closed her mints to the coinage of silver. In Singapore, Penang, and the Federated Malay States, the principal public bodies have held meetings to discuss the matter, and with one exception (that of the Chinese tin miners and mine owners, who are, however, an important and influential body) the general consensus of opinion has been for a fixed standard. This means either a dollar or rupee on a sterling exchange basis. It has been suggested by many influential business men here that this coin should be fixed at 1s. 8d. (40 cents). At the time of writing, when the Mexican dollar is at its lowest ebb, the bank rate of exchange is fluctuating in the neighborhood of 1s. 7d. (38 cents).

The currency of Japan, British India, Burma, Ceylon, Java, and Siam has been placed on a gold basis, and proposals for the same are under consideration in French Indo-China and the Philippines.

It will probably only be a question of a few months before the change is made here. The principal shipping firms have already fixed the scale of wages of their officers and engineers upon a sterling basis, while several of the more important houses in other lines of business are contemplating the same procedure.

THOMAS DAVIDSON,
Vice and Deputy Consul-General.

SINGAPORE, *December 22, 1902.*

PROPOSED CURRENCY CHANGES IN INDO-CHINA.

Mr. Paul Leroy Beaulieu, the eminent political economist, has published an article in which he recommends that the Government of France make a monetary change in the coin used in Indo-China, similar to that made by the British Government in India in 1893. He shows that the piaster of that colony, which ten years ago was worth 5 francs (96 cents), has fallen with the decline of silver until it is now worth less than half that sum. He advises that its value be placed at 50 cents. This is about 25 per cent more than its current value, but he thinks that with the cessation of coinage and the increase of population and business, it can be maintained at that figure. He asserts that during the last few years Indo-China has been inundated with Mexican coins. He advises that hereafter such coins should be outlawed and that all the piasters of the country of domestic or foreign origin should be recast in 50-cent pieces.

The finances of India are regarded as being on a gold basis, with the silver rupee as the unit of value, representing one-fifteenth part of the gold contained in the sovereign. A gold reserve of some £9,000,000 ($43,800,000) is held for the purpose of keeping the rupee at par with gold. It is altogether probable that the proposal of Mr. Beaulieu in regard to the finance of Indo-China will be adopted by the French Government, but he does not propose a gold reserve.

JOHN C. COVERT,
Consul.

LYONS, *January 10, 1903.*

CURRENCY CHANGES IN SIAM.

Vice-Consul-General J. P. Selden reports from Bangkok, December 6, 1902, that Siam has closed the mint at Bangkok to the free coinage of silver and has taken the initial steps to place herself upon a gold basis. Mr. Selden adds:

The tical, the standard coin of the realm, has up to this time had a fixed ratio value to the Mexican dollar of 60 to 100. The steady fall in the value of silver during the last six months has therefore greatly diminished the value of the tical, until during the latter part of the month of November, 1902, £1 was equal to 21 ticals and a fraction.

On November 27, 1902, a notice appeared in the several local papers that the royal mint would no longer issue ticals to the public in exchange for gold, silver, or copper, whether presented in the shape of bullion or coins. At the same time, the ratio of 17 ticals to £1 was fixed as the rate at which the Siamese minister in London would issue demand drafts on Bangkok against pounds sterling in London. This change paralyzed the business interests for the time, as the banks were liable for large amounts.

Under date of December 12, Mr. Selden reports that an arrangement has been made whereby the banks will sell drafts on London at 20 ticals per £1 and buy at 19.25 ticals per £1.

TENDER FOR RAILS IN SIAM.

The Royal Siamese Railway Department has just issued specifications for an open tender on 33,806 tons of steel rails and accessories. These supplies are for the railway which is to extend from Lopburi, the present terminus of the branch line of the Korat Railway, to Chiengmai, a city in the northern part of the country. The time limit for bids on the tender is six months—*i. e.*, from December 15, 1902, to June 15, 1903. All bids must be in on the last-named date. The sealed bids are for the first time to be opened in public.

I forward a set of specifications, conditions, and blue prints to the Philadelphia Commercial Museum. I inclose a notice of the tender, which appeared in the local papers last evening.

JOSEPH P. SELDEN,
Vice-Consul-General.

BANGKOK, *December 15, 1902.*

ROYAL SIAMESE STATE RAILWAYS.

Tenders are requested for the supply of the following permanent way materials:

	Tons.*
Rails	30,000
Dog spikes	950
Fish plates	1,826
Bearing plates	750
Bolts and nuts	270
Spring washers	10
Total	33,806

Drawings and conditions may be obtained, against payment of 5 ticals (about $1.25), at the office of the Royal Railway Department. Sealed tenders, with the inscription "Tender for the supply of permanent way materials," must be forwarded before the 15th of June, 1903, at 10 a. m.

TRANSCONTINENTAL RAILWAY IN AUSTRALIA.

Consular Agent C. A. Murphy sends from Adelaide, December 15, 1902, copy of the advertisement for tenders for constructing the railway across central Australia to Port Darwin, as follows:

Tenders will be received at the office of the railways commissioner, Adelaide, up to noon of Monday, May 2, 1904, for the construction and working of a line of railway on the land-grant system between Oodnadatta, in the State of South Australia, and Pine Creek, in the Northern Territory, in accordance with the provisions of the transcontinental railway act, 1902.

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* 1 ton = 2,205 pounds.

Land to be granted not to exceed 75,000 acres for each mile of railway and to be selected in alternate blocks on either side of the railway; length of railway, not to exceed 1,200 miles; route, as per plan in the act, or such alternative route as may be agreed; gauge, 3 feet 6 inches; motive power, steam or other approved power; rails and fastenings, steel (rails to be not less than 60 pounds to the yard); land to be granted in fee simple, with all gold, metals, and minerals thereon and thereunder.

The tender must contain the following particulars:

1. The quantity of land required for each mile of railway constructed.
2. The number of miles to be constructed each year from Oodnadatta and Pine Creek, respectively.
3. When construction to be completed.

Copies of the act above referred to and a description of the country through which the proposed railway will pass may be obtained at the office of the chief secretary, Adelaide; at the office of the agent-general for South Australia, at No. 1 Crosby square, Bishopsgate street Within, London, E. C.; and may also be obtained or inspected at the offices of every paper in which this advertisement appears.

Tenders should be indorsed "Tender for the construction of Transcontinental Railway, South Australia and Northern Territory," and must be accompanied by a bank-deposit receipt for £10,000 ($48,665) in favor of the treasurer of South Australia at some bank situated within the Commonwealth of Australia.

A stipulation will be made with the successful tenderer, says Mr. Murphy, that no time shall be lost in completing the construction of the line. A pamphlet describing the enterprise, forwarded by him, is filed in the Bureau of Foreign Commerce, where it may be consulted by those interested.

WOOL PRODUCTION IN AUSTRALASIA.

Consul-General J. P. Bray, of Melbourne, under date of December 19, 1902, reports that owing to the drought prevailing in Australia, there is a large decrease in this season's supply of wool—estimated at over 200,000 bales. At recent sales prices of both merino and crossbred wools advanced from 20 to 30 per cent. The total Australasian wool clip of the past two seasons was:

State.	1900-1901.	1901-2.
	Bales.	*Bales.*
Victoria	220,000	227,000
New South Wales	708,000	763,000
Queensland	157,000	143,000
South Australia	110,000	103,000
Tasmania	26,000	26,000
Western Australia	29,000	32,000
Total	1,250,000	1,294,000
New Zealand	396,000	406,000
Total for Australasia	1,646,000	1,700,000

The estimated clip for 1902-3 is placed at 1,500,000 bales—a decrease of 200,000 bales.

This decrease, adds Mr. Bray, has not materially affected the exports to the United States from Victoria, as the number of bales invoiced at the consulate-general is well up to that of last season—viz, 20,000 bales—and should reach 25,000 or 26,000 bales.

HARBOR WORKS AT ADELAIDE, AUSTRALIA.

The South Australian government has accepted a tender for the construction of an outer harbor in Light's Passage. The amount of the tender is about $2,500,000. A local firm of well-known contractors (Messrs. Waring & Rowden) has been the successful bidder.

The contract includes making a channel with two bends from the present 33-foot depth of water to the site of the harbor. This passage will be 1,000 feet long, 400 feet wide, and have a depth of 33 feet at low water. The swinging berth will be 1,000 feet wide, 2,000 feet long, and 33 feet deep. An area of 3,200 feet by 2,600 feet will be reclaimed out of the material raised from the channel and berth. This will extend from the land to the wharfs, and the seaward side will be protected by an embankment faced with stone, 3,200 feet long. The wharfs are to be 1,500 feet long, with 40 feet of docking, which will carry two or four lines of rails, connecting with Port Adelaide. On the inner side of the channel, a revetment mound 7,000 feet long, running from the wharfs to the site of the old light-house, is to be constructed of random stone and raised to a foot above high-water mark. This is to train the tidal current and assist in maintaining the depth of the channel. Lighting, mooring, and buoying facilities will be provided afterward. After handing over the works, the contractors have to be responsible for their maintenance for twelve months.

It is expected that work will be vigorously started at the beginning of April.

CHAS. A. MURPHY,
Consular Agent.

ADELAIDE, *December 19, 1902.*

COAL PRODUCTION IN NEW SOUTH WALES IN 1902.

During the year 1902, 2,966,764 tons of coal were exported from Newcastle to places beyond the State of New South Wales. In the previous year the export amounted to 3,104,735 tons, or 137,971 tons more. Expressed in money, the falling off in the trade was £43,167 ($210,072.20). Within the Commonwealth, outside of the mother State, the consumption of Newcastle coal last year was 169,932 tons less than in 1901, Queensland being the only State whose requirements were not diminished; it took 21,933 tons in excess, while Victoria, South Australia, Western Australia, and Tasmania called for 41,518 tons, 58,701 tons, 66,897 tons, and 2,816 tons, respectively, less. Another heavy falling off was in the trade with Honolulu. The United States, also, was not such a good customer as formerly. These deficiencies were to some extent counteracted by the greater business done with the eastern markets and those of the west coast of South America. Chile, which still retains her place as by far the best of Newcastle's foreign customers, increased her demands by 13,132 tons.

The return of the trade, as prepared by the custom-house officials, is as follows:

Country or state.	1901.	1902.	Country or state.	1901.	1902.
	Tons.	*Tons.*		*Tons.*	*Tons.*
Victoria	804,181	762,663	Panama	7,394	7,614
Queensland	33,190	54,123	Mexico	17,320	24,174
South Australia	476,548	417,847	Celebes Islands	....	11,974
Western Australia	215,286	148,389	Great Britain	4,390	3,600
Tasmania	87,275	84,459	New Guinea	2,320	5,100
New Zealand	242,176	244,033	Cape Colony	8,176	6,302
Hongkong	9,050	25,432	China	1,600	3,130
United States	205,364	180,299	Natal	25,199	23,086
Java	83,219	95,867	Ceylon	3,200	1,100
New Caledonia	20,573	10,182	Canada	6,500	4,450
India	30,293	34,843	Gilbert Islands	6,008	7,585
Philippine Islands	106,416	128,639	New Britain	2,550	....
Fiji	18,311	25,209	Nicaragua	891	1,213
Mauritius	9,980	8,636	South Sea Islands	888	5,847
Peru	47,912	50,147	Society Islands	1,345	....
Chile	415,167	428,299	Germany	750	....
Straits Settlements	36,257	53,152	Eleele group	....	475
Sandwich Islands	168,869	105,680	Total	3,104,735	2,966,764
New Hebrides	2,250	....			
Ecuador	3,887	3,215			

Comparative returns for the years 1901 and 1902.

Year.	Quantity.	Value.	
	Tons.		
1901	3,104,735	£1,528,121	$7,436,600.84
1902	2,966,764	1,484,954	7,226,528.63
Decrease	137,971	43,167	210,072.21

F. W. GODING,
Consul.

NEWCASTLE, N. S. W., *January 14, 1903.*

NOTES.

Martinique-Guadeloupe Wireless Telegraphy.—Under date of January 24, 1903, Consul L. H. Aymé, of Guadeloupe, reports:

Regular daily communication has been established between this colony and Martinique by a system of wireless telegraphy. The station in Guadeloupe is situated near to Gosier light-house, and that in Martinique, I am informed, somewhere on the peninsula of La Caravelle, on the east side of that island, so that the air line between the two stations passes entirely over the sea. These stations have been installed by a detachment of army engineers, and only official messages between the governors of the two colonies have thus far been exchanged. The officer in charge informs me that the system used is not the Marconi, but is one devised by the French engineer corps. The spark used is about 4 inches long, and the power is obtained from a small dynamo driven by an engine using vaporized naphtha. Four wires are used, separated at the top and bottom, forming a long, rectangular cage. The mast is said to be 170 feet high. As all cable communication with Martinique has been interrupted for several months, this is the only means of sending telegraphic messages.

Brazilian Cacao Crop in 1902.—Under date of February 2, 1903, Consul K. K. Kenneday sends from Para a statement of the cacao exports in 1902, as follows:

Exports in 1902.

To—	From—			Total.
	Para.	Manaos.	Iatacoatiara.	
	Tons.	*Tons.*	*Tons.*	*Tons.*
America	549.7	67.5		617.2
Europe	3,018.2	378.7	427.4	3,824.3
Total	3,567.9	446.2	427.4	4,441.5

Exports in the last ten years.

Year.	Quantity.	Year.	Quantity.
	Tons.		*Tons.*
1893	4,984	1898	2,663
1894	3,591	1899	5,653
1895	5,225	1900	3,085
1896	3,328	1901	2,867
1897	3,765	1902	4,441

Commercial Legislation in Colombia.—The Department has received from Minister Hart, of Bogotá, under date of December 12, 1902, notice that the legislative decrees of November, 1901, concerning the registry of public and private documents, have been abolished. The first decree provided that every document containing a contract or obligation must be registered, or the act would be void. Another article prohibited the drawing up of contracts stipulating for cash or credit payment in moneys other than the bills of the National Bank of Colombia. As the larger part of commercial agreements, the minister noted, are concluded not by means of private documents or public instruments, but by correspondence whose registration would be impossible, the decrees became of grave importance in their effect upon foreign trade. The matter was finally submitted to the consideration of the attorney-general of the Republic, and his opinion has been followed by the above definite legislation.

Mahogany Exports from Nicaragua.—Consul A. L. M. Gottschalk, of San Juan del Norte, January 27, 1903, transmits figures of the exports of mahogany from the port of Bluefields during the year 1902. The data, which were furnished by the Emery Mahogany Works at that port, show that some 24,583 logs were exported, which represented about 6,759,325 feet of lumber and a total value of $337,966 in United States currency. The shipments were, in detail:

Date of shipment.	Logs.	Date of shipment.	Logs.
	Number.		*Number.*
February 4	2,981	October 16	2,069
March 22	3,013	October 29	1,736
May 8	813	November 6	3,159
June 12	2,402	December 14	2,535
August 16	2,770	Total	24,583
October 1	3,105		

Imports at Puerto Cortes, Honduras.—Consul W. E. Alger sends from Puerto Cortes, January 28, 1903, the following table of importations through the customs at Puerto Cortes for 1902 and 1901:

From—	1902.	1901.
United States	$367,788.76	$334,104.99
Great Britain	51,035.97	35,691.03
Germany	28,839.39	27,711.15
France	4,435.40	6,256.14
Spain	2,378.25	2,124.75
Total	454,477.77	405,888.06

Increase over the year 1901, $48,589.71.

Steel Plant at Monterey, Mexico.—Consul-General P. C. Hanna sends the following from Monterey, February 14, 1903:

The Monterey Steel Plant, with a capital of about $4,000,000 gold, in which several wealthy Americans are largely interested, started working on the first of this month. The Monterey Daily News says:

> Castings now being made at the steel plant are molded from iron turned out of the blast furnace. In no respect has the iron proved inferior to any, and the operators declare that the product is of the best quality. Casts are now being made with considerable regularity and the output is nearly 125 tons a day. It is expected eventually to turn out no less than 300 tons a day.

It is the opinion of many persons that the establishment of this plant, which will furnish cheaper raw iron to industries, will result very soon in the opening of several smaller manufactories in Monterey.

Machinery for the Yukon.—Under date of February 4, 1903, Consul L. E. Dudley, of Vancouver, reports:

It is said here that very large amounts of mining machinery will be sent into the Klondike or Yukon region during the coming summer. I have been informed that hundreds of tons of such machinery are being ordered, some from firms in Victoria and Vancouver and some from other points in Canada and in the United States. The Dawson correspondent of one of the newspapers says that several hundred tons more of machinery would have arrived in Dawson during the past year had it not been for the strikes in the coal regions and in manufacturing concerns. Boilers, huge steam pumps, and all manner of equipment have been ordered in British Columbia, Washington, Oregon, and eastern Canada.

Niagara Falls Power for Toronto.—Under date of February 26, 1903, Consul E. N. Gunsaulus, of Toronto, says that a recent issue of the Canadian Manufacturer, of that city, contained the following:

> The New Niagara Falls Power Company, which will be financed largely by Toronto capital, will commence operations immediately after the Government agrees to give it the right to develop power. The electricity will be brought to the city by cable over the entire distance of 90 miles, and it is expected that at least 125,000 horsepower will be generated when the plant is working to its full capacity. For use within the city, 20,000 horsepower will be produced at first, but the company intends to sell power to municipalities and firms along the line. The power will be used to operate the Toronto Street Railway and the Electric Light Company's plant. It is expected that the expenditure will total about $5,000,000, and the work will be completed within two years or less.

It is proposed, the consul notes, to convey the power to Toronto by means of a double-pole line.

Canadian Request for Molybdenum.—Consul E. N. Gunsaulus sends from Toronto, February 24, 1903, a letter from Mr. W. B. Bentley, 72 Queen street W., Toronto, as follows:

I am interested in molybdenite and actinolite properties, of good quality, in Ontario.

Molybdenum, as you know, was formerly used in the dyeing of silks and cottons, but its recent application to the production of a peculiar high-grade steel, rendered possible by recent advances in electro-metallurgy, has resulted in molybdenite emerging from its position of comparitive obscurity as a rare mineralogical specimen to an article of great commercial value.

I desire to get into communication with the various dealers (chemical companies, I presume) in the United States who handle this mineral, and would be greatly obliged if you would forward my inquiry to the proper parties.

Steamship Line between Rotterdam and Montreal.—Under date of February 13, 1903, Consul-General S. Listoe, of Rotterdam, writes:

The Rotterdamsch Nieuwsblad of February 13, 1903, quotes the Rotterdam correspondent of the Hamburger Borsenhalle as follows:

The British shipowners, who, as I stated before, intend to inaugurate a direct steamship line between Rotterdam and Montreal, compose the firm of William Peterson, Limited, of Newcastle-on-Tyne. This firm has agreed with its agents, Messrs. Thomas Ronaldson & Co., Limited (at Rotterdam), that the line shall be called Canadian Ocean and Inland Line. The first sailing date from Rotterdam is April 15. When there is sufficient cargo, the steamers will also touch Quebec.

It is reported that the agents for the new line have already closed a contract with German shippers for the forwarding of 30,000 tons of rails. Besides, it is expected that much general merchandise will be carried.

New Russian Tariff.—Consul-General W. R. Holloway reports from St. Petersburg, January 31, 1903:

The tariff experts of the customs bureau have been working for a considerable time on a new tariff, in view of the approaching expiration of the trade treaty with Germany. There is a decided increase in many articles, but it is believed here that it is being formulated mainly as a basis for the negotiation of new treaties.

The St. Petersburg correspondent of the London Times* quotes from the Novoe Vremya the following:

In the vast majority of cases, the duties of the new tariff show an increase of 50 per cent on those of the tariff of 1891. The duties on many articles have been doubled, and in some cases more than doubled. This applies especially to manufactured goods, and to a less extent to agricultural products and to gastronomic delicacies.

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* Edition of February 3, 1903.

The new tariff shows a great improvement on the last in the matter of specification, and many classes of goods which were formerly grouped together are now divided into different classes. For instance, cycles and electrical apparatus now occupy classes to themselves instead of being grouped together with other machinery. An especially interesting feature of the new tariff is that the duties on goods imported by land are 20 per cent higher than those on the same goods imported by sea.

German Customs Declaration as to Country of Origin.—Consul J. J. Langer, of Solingen, says:

The new German customs tariff prescribes that on entering goods the importer shall make declaration as to the country of origin. This shall apply particularly to goods on which the rates of duty have been reduced by special agreement.

In case the importer neglects to comply with this requirement, he shall pay, in addition to the fine imposed, the highest rate of duty to which such goods may be subject. From this it would seem that the country of origin, and not the country from which the goods may happen to come into Germany, will be the basis on which it is to be decided whether the general or a stipulated tariff shall be applicable. Thus far no such regulation has existed.

On goods which do not require the declaration as to country of origin the general tariff rates apply.

Circulars for Germany.—Under date of February 4, 1903, Consul J. J. Langer writes from Solingen:

Advertising matter is frequently received by concerns here from manufacturers in the United States which, being in the English language, is of practically no value. A local hardware dealer some time ago received catalogues of wire fences. While he was interested, he could not understand the description, the sizes being expressed in inches and pounds, and, even after reducing these to the metric system, he could tell nothing of the detailed construction. He would not, he said, object to giving them a trial, but would not order them without knowing more about them. When an American manufacturer desires to introduce goods into this country, he should find some responsible agent to keep stock, or at least a full line of samples on hand, and let him introduce the article among the trade. Better still, of course, where larger sales come into consideration, is to send able salesmen who can speak the German language, select the houses they wish to deal with, and make arrangements as to terms, etc. If printed matter is used, it should certainly be in the language of the country to which it is sent.

Dresden Exposition of Municipal Government.—Consul-General Charles L. Cole writes from Dresden, February 13, 1903, that an exhibition will be held in that city from May 20 to September 30, 1903, which has for its object the study of improvements in municipal government and welfare. This will include streets, street paving and cleaning, sewers and drainage, gas and electric lighting, bridges, harbors, parks, schools, hospitals, police, cabs, automobiles, and kindred subjects. Invitations are sent to the prominent cities in the United States of America to appoint delegates to this exposition. Further information may be obtained by interested parties by addressing Oberbürgermeister, Geh. Finanzrath a. D. D. Beutler, Dresden, Saxony. Circulars (in German) setting forth the scope of the exhibition, transmitted by the consul-general, are filed for reference in the Bureau of Foreign Commerce.

Exposition of Apiculture in Vienna.—Under date of January 31, 1903, the Department has received from the Austrian embassy, Washington, notice of the International Exposition of Apiculture to be held in Vienna from April 4 to 26, 1903. It is asked that the attention of parties interested in apiculture be called to this exposition, the first since 1894. The exposition will include eight groups:

1. Live bees: (*a*) Movable colonies; (*b*) fixed colonies: (*c*) queen-bee breeding colonies; (*d*) observation hives.
2. Apiaries: (*a*) Movable hives; (*b*) fixed hives; (*c*) storehouses.
3. Implements.
4. Bee products: (*a*) Honey in the comb; (*b*) honey in glasses; (*c*) in other vessels; (*d*) wax in bulk.
5. Artificial products: (*a*) Artificial wax; (*b*) hydromel, honey wine, honey liquor in flasks; (*d*) other products from honey or wax.
6. Means of instruction: (*a*) Literature; (*b*) preparations.
7. Apparatus.
8. Special pavilions.

Communications should be addressed to the president of the exposition committee, Oswald Muck, 1 Schauflergasse 6, Vienna, Austria.

Marble in Hungary.—Consul F. D. Chester writes from Budapest, December 29, 1902:

In answer to inquiries relative to the location of the marble described in my report of July 31 last, I have obtained the following information: Mr. Imre Ney, stonecutter, of VI, Városligeti fasor, 3, Budapest, owns property in the valley of the Bisztra River, in Transylvania, containing gray marble; but the largest yield would be gained from the hills in the district of Gyergyó-Szent-Miklós,* in Osik County, Transylvania, where there is already one quarry (at Vasláb) of white marble, which is owned by the priest, the town clerk, and another person. The family of Andreas Saxlehner (exporter of Hunyadi water) tried quarrying at the town of Szárhegy, but in the wrong place, at the base of a hill on which stood a church, and had no success.

Opening for Potato-Starch Machinery in Russia.—Vice-Consul Hernando de Soto writes from Warsaw, January 29, 1903:

I am reliably informed that 12 new factories for potato starch are in course of erection in this consular district, which is due to the large crops in this section of Russia. About 90 potato-starch factories are already in operation. There is a large demand for machinery for the manufacture of this starch, and there is a decided tendency to give preference to all foreign machinery other than German. I have been requested to obtain offers from American manufacturers as promptly as possible. Offers may be directed to Bronislaw Oderfeld, 17 Ujasdowska Aleja, Warsaw, who, I am informed, is a reliable agent. Prices should be stated f. o. b. New York, or, if possible, delivered at Stettin, Germany.

Vulcanized Timber in England.—The following extract from the Liverpool Daily Post of February 11, 1903, has been received from Consul James Boyle, of Liverpool:

> A considerable amount of interest has been aroused by the announcement, as the result of a prolonged series of experiments, of a method of so treating timber as to secure even from soft wood a largely increased toughness and hardness. The process is described as one of vulcanizing, comparable in some respects with Bessemer's process of converting iron into steel, and is the invention of Mr. Powell, a Liverpool merchant. The treatment to which the timber is subjected is, roughly speaking, that of saturation at boiling point with a solution of sugar, the water being afterwards evaporated at a high temperature. The result is to leave the pores and interstices of the wood filled in with solid matter and the timber vulcanized, preserved, and seasoned. The nature of moderately soft wood, it is claimed, is in this way changed to a tough and hard substance, without brittleness, and also without any tendency to split or crack. It is also rendered remarkably impervious to water. Hard woods similarly treated derive similar benefits. Moreover, it is claimed that the process may be completed and timber turned out ready for use in a few days. The invention, which has been patented, is to be brought before the attention of the timber trade by a series of practical demonstrations and lectures. It is stated that inquiries from Russia and other foreign countries have already been received.

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* Best fields at Ditró and Szárhegy, where there are cheap and clever stonecutters, it is said.

New Industry for the Blind.—Consul J. H. Thieriot sends from Lisbon, February 6, 1903, translation of a paragraph from a local paper in reference to a new industry for the blind in Portugal, as follows:

> In the school for the blind, founded in Lisbon by Branco Rodrigues, there has been established a new kind of industry, which will prove most remunerative to the inmates. It consists in unraveling or "picking" vegetable fibers used as stuffing material for furniture, beds, etc.
>
> A blind person, working eight hours a day, can earn 500 to 600 reis (about 43 to 52 cents) per diem.
>
> In order to obtain the raw material for the labor and meet orders which are expected, the founder has written to all furniture makers in Lisbon and Oporto, begging them to give him their custom.
>
> It is hoped that the lot of the blind will be considerably improved thereby, as they will receive in full the profits of this industry.

Demand for American Peanuts in France.—Consul-General R. P. Skinner, of Marseilles, under date of January 31, 1903, says:

I am in receipt of inquiries from local importers for the addresses of exporters in considerable quantities of American peanuts. During last year, some 10,000 bags were received in Marseilles, and the oil into which they were manufactured was of good quality, although the quantity was rather less than that derived from the same weight of African nuts. The demand here is practically unlimited, if American exporters can meet prevailing prices. At the present time, these prices range from $3.95 to $4.73 per 220 pounds c. i. f. for African nuts in the shell. It is the understanding in Marseilles that the production in the United States is increasing very rapidly, and that there will be annually increasing quantities for export from America.

Firemen's Competition at Havre.—Consul A. M. Thackara writes from Havre, January 22, 1903:

An international firemen's competition will be held at Havre, France, on May 31 and June 1 next, under the auspices of the mayor of the city and other distinguished citizens. The exercises will consist of such maneuvers of fire engines, hook and ladder companies, etc., as shall be determined by the jurors. The juries will be composed of French and foreign firemen who are in active service. The following prizes will be given:

1. Prix d'honneur for the best execution of the maneuvers.
2. Prize to the company which presents the best appearance, both as to its personnel and its apparatus.

Organized fire departments in all parts of the world are invited to send representatives. The president of the organization committee assured me in a letter that American firemen who accepted an invitation to the competition would meet with a warm welcome. For information as to details of the competition, application should be made either to R. Duchemin, president of the organization committee, or to this consulate.

Agricultural Congress in Rome.—The Department has received from the Italian embassy, Washington, under date of February 4, 1903, notice of the Agricultural Congress in Rome,* to be held from April 19 to 23, 1903. A programme is inclosed.† The hope is expressed that the United States may be largely represented at this international congress, and a cordial invitation is extended to private persons as well as to interested associations to take part. The entry fee is 20 francs ($3.87). Communications should be addressed to the Hon. Edoardo Ottavi, general secretary to the arranging committee, Chamber of Deputies of Rome.

International Dairy Congress at Brussels.—Consul G. W. Roosevelt reports from Brussels, January 28, 1903:

The National Dairy Association of Belgium has decided to hold an international congress at Brussels during the month of September, 1903, immediately after the Eleventh Congress of Hygiene and Demography. The dairy congress will discuss the principal subjects now interesting the dairy world, and especially those of international importance, such as—

1. International convention for the repression of fraud in the butter and margarin industry.
2. Hygiene of milk and milk products.
3. Creation of an international dairy association.

German Professorship of Railroads.—Consul-General Richard Guenther reports from Frankfort, January 22, 1903:

A regular professorship of railroading is to be created at the Technical High School of Berlin. Since 1901, a course of six lectures on railroading has been delivered at this school; but as this limited course was not sufficient for the important branch (for which a programme of instruction had been agreed upon in conjunction with the management of the State railroads), it is now proposed to establish a full professorship. Much more attention has recently been paid in the school to the construction of locomotives and to signaling.

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* See ADVANCE SHEETS No. 1473 (October 20, 1902).

† Filed in the Bureau of Foreign Commerce, where it may be consulted by parties interested.

Reconstructed Shipyards in Stettin.—Vice-Consul Henry Harder reports from Stettin, February 3, 1903:

The former "Oderwerke" (shipyards and machine-building works at Stettin) have been reconstructed and will be managed by the Joint Stock Company for Ship and Machine Building. The real estate, machines, utensils, and the floating dock, estimated altogether at $900,000, were taken over at the price of $433,000, and the stock capital was fixed at $410,000; besides, there are mortgage bonds issued for about $238,000.

German Plan for Guaranteeing Fresh Eggs.—Consul J. I. Brittain writes from Kehl, January 15, 1903:

A unique method for insuring the freshness of eggs has been adopted by the Dairymen's Association in the vicinity of the city of Kehl. The agents of this association go among the farmers each day and purchase eggs, the farmer guaranteeing that these have been laid within the previous twenty-four hours. In consequence of this guaranty, the association pays the farmer 3 pfennigs, or about half a cent, above the regular market price for each egg. The Dairymen's Association then makes a record of each purchase by giving the farmer a registered number and numbering each egg in a corresponding manner. When a consumer chances to find a stale egg, he returns it to the dealer, who in turn charges it to the association, which reports the matter to the farmer. The method is a protection to all parties concerned, and is said to meet with much success. The eggs are delivered to the dealer in cases containing 5 dozen each.

German Colonial Finances.—Commercial Agent E. L. Harris, of Eibenstock, quotes from the Chemnitzer Tageblatt, of January 13, 1903, the following statistics on the German colonies:

In the Reichstag budget for 1903, the German colonies appear in a favorable light. Of course, our colonies, taken as whole, still demand a great expenditure of money; yet, when we compare the present budget with that of last year, the expenditures have been reduced $480,800. This reduction is chiefly due to the increased income of the colonies themselves, and this income will in all probability continue to increase in the future.

Every colony shows an advance in its income, with the exception of East Africa, where the decrease from native resources amounts to nearly $20,000. Southwest Africa shows a surplus of $88,676; Kamerun, $12,233; Togoland, $131,967—or 50 per cent increase. It should be noted that the budget of 1903 contains no appropriations for Togoland, while that of 1902 amounted to $238,000. The showing of all the other colonies is on the whole favorable.

Gold Mining in German East Africa.—Consul J. F. Winter writes from Annaberg:

According to reports in the German press, this year will witness the beginning of a systematic effort to mine gold on the east shore of Lake Victoria. This region is in German territory. During the past few years, a number of travelers have visited this part of the country, and on their return reported the presence of gold. In order to reach these prospective mines, new ways and means of transportation must be established. The east shore of Lake Victoria lies about 600 miles distant from the ocean. Inasmuch as Germany has as yet no railways in her East African colonies, the chances are that the English Uganda Railroad will be used as far as practicable.

Gutta-Percha in German New Guinea.—Under date of February 3, 1903, Consul-General O. J. D. Hughes writes from Coburg:

Gutta-percha trees of a very good quality have just been discovered in abundance in German New Guinea. These are said to yield an excellent quality, equal to "gutta merah" and the other finer grades. Samples sent for analysis to Germany are now undergoing a detailed technical investigation. It is already being predicted that in future German New Guinea will supply the trade with appreciable quantities of gutta-percha, which will be welcome news to the cable industry, the supply of the better qualities having steadily declined. Mr. Oldemeyer, the discoverer, secures the prize of $750 offered by a Bremen merchant to the explorer finding a wild gutta plant in any of the German colonies.

Coral in Japan.—Under date of January 8, 1903, Consul S. S. Lyon, of Kobé, sends clipping from the Kobé Chronicle, as follows:

The coral fishers in the Kagoshima Sea are engaged in a prosperous trade, which has apparently good prospects. During the past year, up to November, thirty boats were engaged in the fishery, and the amount of coral gathered during that period is valued at 20,602.97 yen ($10,260). Of the coral, about 120,617 kwamme (998,709 pounds) is of the pink variety, and 7,890 kwamme (65,229 pounds) of the red and 182,433 kwamme (1,530,745 pounds) of the white varieties. A coral shoal which was discovered last year near Tsuto Island is said to produce coral of the best quality, which is not inferior to that produced in Italy. This quality has realized about 111 yen ($55) per kin, or catty.*

Cotton Yield in Central Asia during 1902.—Consul-General W. R. Holloway reports from St. Petersburg, January 16, 1903:

The statistical bureau has just published figures on the yield of cotton in central Asia during 1902 which show a decrease of 13.1 per cent from 1901. This was especially in cotton from American seed. The cultivated district had also been reduced by 31.9 per cent. The total yield of raw cotton decreased by 3,096,000 poods (111,802,752 pounds) in the Fergan region, by 187,000 poods (6,752,944 pounds) in the trans-Caspian region, by 415,500 poods (15,004,536 pounds) in the Syr-Darian region, and by 157,000 poods (5,669,584 pounds) in the Samarkand region. It increased by 1,150,000 poods (41,528,800 pounds) in Khiva and by 1,022,000 poods (36,906,464 pounds) in Bokhara against the yield of 1901. The total yield of cotton in central Asia is expected to be about 4,900,000 poods (176,948,800 pounds); that grown from American seed is estimated at 2,700,000 poods (97,502,400 pounds), against 3,900,000 poods (140,836,800 pounds) in 1901.

Opening for Dredge in Syria.—Consul W. R. Davis writes from Alexandretta, January 20, 1903:

The improvement commission is considering a new plan for reclaiming the marsh (about 6 square miles in area) that lies near this city. Part has been filled, and it is now proposed to dig a canal from the sea on the west of the town, which shall bend to the south and end at the sea on the east, being some 3 miles long, with a depth of 12 feet and a width of 50 feet, making it navigable for water craft of 100 to 200 tons burden. An allowance of 2,000 liras ($8,800) has been made, and the authorities seem to be willing to spend that sum for a dredge. Circulars or price lists of dredges should give cost c. i. f. at Alexandretta. Free on board at New York is not sufficient, as transshipments add much to the cost, and it is necessary that expenses be kept at the minimum.

Quinine Auction in Batavia.—Consul B. S. Rairden reports from Batavia, January 6, 1903, that the last public tenders for quinine for the year 1902 were received at the office of the agents of the

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* 1 catty = 1.33⅓ pounds.

Bandoeng quinine factory, in Batavia, on December 30. The entire quantity (about 2,145.12 kilograms, or 4,729 pounds) was sold for 16.65 florins ($6.69) per kilogram (2.2046 pounds), or a unit price of 0.0607 florin (2.44 cents), as against the unit price of 0.06 florin (2.4 cents) realized at the sale of the 27th of November, 1902.

Export Duties of Colombia.*—Under date of December 13, 1902, Minister Hart, of Bogotá, transmits translation of a decree, which provides:

> From January 1, 1903, export duties will be reduced 10 per cent per month—that is to say, in January exporters will pay only 90 per cent of the duties fixed by decree No. 1424, of September last; in February, 80 per cent; in March, 70 per cent; and so on successively.

A telegram from Minister Hart† informs the Department that a decree has been issued abolishing all export duties (except on precious metals), to take effect as soon as notice thereof reaches the custom-houses.

Paper Suitable for Bills in Colombia.—The Department has received from Minister Hart, of Bogotá, under date of December 13, 1902, translation of a decree prohibiting the importation by private persons of paper suitable for making bills. The decree reads:

> ARTICLE 1. Sixty days after the publishing of this decree in the Diario Oficial, the importation by private persons of papers suitable for making bills is prohibited.
>
> ART. 2. Private persons who have in their possession paper to which the foregoing article refers must give notice thereof to the director of the national lithographic bureau at the latest thirty days after the date of this decree. Offenders will incur a fine equal to the value of the paper imported.

Sugar Crop of Guadeloupe.—Under date of January 24, 1903, Consul L. H. Aymé, of Guadeloupe, says:

The grinding of the sugar cane, the principal product of this colony, began January 1. The crop is rather over the normal in quantity, but thus far of low percentage in sugar. This is due to unseasonable and excessive rains in December, and also during the past ten days. Normally, the canes should yield 10 per cent of centrifugal sugar, but thus far not more than 7 to 7.8 per cent has been obtained. However, the price of sugar in France has risen and may rise still further. The destruction of the great rum distilleries of Martinique last year has enhanced the price of Guadeloupe rum, and it seems probable the net cash result of the sugar crop this year will be greater than for some years past.

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*See ADVANCE SHEETS Nos. 1510 and 1524 (December 3 and 19, 1902).

†Received in the Bureau of Foreign Commerce February 17, 1903.

Automobiles in Guadeloupe.—Consul L. H. Aymé, of Guadeloupe, under date of January 24, 1903, writes:

A daily automobile service has been established between this city and the town of Ste. Rose. This service is the first step toward the substitution throughout the colony of automobiles for the archaic stage coaches which were the only means of land transport. The Ste. Rose line began running January 1 and has proved a success. On March 1, two new lines will be established, one from this city to Basse Terre and the other from this city to Le Moule. The automobiles used are of French manufacture, with gasoline engines as motive power. They are well made, handsome vehicles and carry ten passengers besides the chauffeur and his assistant. The prices charged are about the same as for the old stage coaches.

Bank Exchange Rate in Guadeloupe.—Consul L. H. Aymé, of Guadeloupe, reports that the Banque de la Guadeloupe, on January 22, lowered the rate of exchange at ninety days on Paris to 10 per cent; and at sight for sums not exceeding 500 francs ($96.50) to 11 per cent. This is a drop of two points from the rates long prevailing. The consul adds that the bank is apparently in better condition than for some time, and when the director returns from France next month it is said that exchange will be still further lowered.

American Shoes in Jamaica.—Consul G. H. Bridgman, of Kingston, January 30, 1903, reports that the trade in American boots and shoes has increased so much of late that the matter became one of government inquiry, and the result shows that the apparent causes of the improvement in this trade are: (1) Quicker and cheaper transit of goods from the United States; (2) excessive charges made by the British manufacturers for cases; (3) greater suitability of American lines for the Jamaica trade and better attention given to the appearance of the goods, especially in the cheaper grades; (4) quicker dispatch by American manufacturers in executing orders.

Increase in Venezuelan Tariff.—The Department has received from Mr. Russell, secretary of legation at Caracas, under date of February 20, 1903, notice that the Government of Venezuela, by an executive decree, has created an "extraordinary war tax." There is a 30 per cent increase in the duties on imports. Exports are taxed as follows: For each 50 kilograms (110.2 pounds) of coffee, 2 bolivars (38.6 cents); sweet cacao, first quality, 16 bolivars ($3.08) for each 50 kilograms; all other qualities of cacao, 6 bolivars ($1.16) for each 50 kilograms; cattle hides, 4 bolivars (77.2 cents) for each 46 kilograms (101.4 pounds); goat and deer hides, 5 bolivars (96.5 cents) for each 46 kilograms.

Mexican Duty on Wheat.—Consul W. W. Canada, of Veracruz, under date of February 16, 1903, reports that the reduction of customs duty on wheat from $5 to 50 cents (silver)* per 100 kilograms (220 pounds), which went into effect November 15, 1902,† has been extended from March 31, 1903, to June 30, 1903.

American Steel Factory at Flushing.—Consul-General S. Listoe, of Rotterdam, February 13, 1903, sends the following translation of an article published in the Rotterdamsch Nieuwsblad:

> A former resident of Flushing, now an employee of a company in the United States which has a capital of $1,500,000 in preferred and $2,000,000 in common shares, is making efforts to establish at Flushing an American steel factory, and for this purpose he has requested an option on plots of ground situated along the inner harbors or along the canal of said city.

Safety Pins in Hungary.—Consul F. D. Chester reports from Budapest, January 20, 1903:

The Hungarian official organ for consular and other reports has published the statement that safety pins are not manufactured in Hungary, and that the Royal Hungarian Commercial Museum in this city has on file lists of Austrian and German manufacturers of that article. The attention of American exporters is called to this opening.

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* From $2 to 20 cents gold, taking the value of the Mexican peso as 40 cents.

† See ADVANCE SHEETS No. 1530 (December 27, 1902).

Opening for Dredge in Russia.—Vice-Consul H. De Soto reports from Warsaw, February 7, 1903, that L. Chelminski, an engineer residing at No. 5 m. 7 Mokotowska, Warsaw, desires to import dredges for river work, and wishes to obtain quotations from American manufacturers.

Brazilian Revenue Bill for 1903: Correction.—In the report under the above title appearing in ADVANCE SHEETS No. 1571 (February 14, 1903), and also in the current CONSULAR REPORTS on page 522, the signature was accidentally omitted. The report was written by Consul H. W. Furniss, of Bahia.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
J. C. Bray, Melbourne	Jan. 10, 1903	Wool statistics	Department of Agriculture.
W. F. Grinnell, Manchester	Jan. 1, 1903	Health statistics	Marine-Hospital Service.
D. Swiney, Cork	Feb. 4, 1903	Agricultural conditions	Department of Agriculture.
L. E. Dudley, Vancouver	Feb. 5, 1903	Profit sharing	Department of Labor.
Do	Feb. 13, 1903	Strike of miners	Do.
Do	Feb. 19, 1903	Agricultural conditions	Department of Agriculture.
J. H. Thieriot, Lisbon	Feb. 5, 1903	Viticulture	Do.
M. Halstead, Birmingham	do	New bank note	Bureau of Engraving and Printing.
T. Haynes, Rouen	Feb. 10, 1903	The administering of medicine.	Marine-Hospital Service.
H. Muench, Zittau	Feb. 5, 1903	Female labor	Department of Labor.
H. W. Diederich, Bremen	Jan. 15, 1903	Leading German bonds	Treasury Department.
V. E. Nelson, Bergen	Feb. 5, 1903	Camp bedsteads	War Department.
R. M. Bartleman, Valencia	Feb. 15, 1903	Wheat crop	Department of Agriculture.

FOREIGN REPORTS AND PUBLICATIONS.

Commerce of Venezuela.—The following is summarized from the Revue du Commerce Extérieur, Paris, January 24, 1903:

The last official statistics of trade of Venezuela give the imports as 42,797,500 francs ($8,259,918); in 1894 they were 107,656,000 francs ($20,777,608). The exportations may be estimated at 74,497,550 francs ($14,378,027). The following table shows the decline of the commerce of Venezuela with France. The figures of Germany are added for purposes of comparison.

Year.	Imports from France.		Imports from Germany.	
	Francs.		*Marks.*	
1896	5,500,000	$1,061,500	6,390,000	$1,520,820
1897	4,100,000	791,300	5,520,000	1,313,760
1898	1,200,000	231,600	4,260,000	1,013,880
1899	2,300,000	443,900	4,021,000	956,998
1900	1,700,000	328,100	5,037,000	1,198,806
1901	1,000,000	193,000	....	....

The German imports also show a decrease, but less than the French. This is explained in part by the cheaper grade of the German products and also, without doubt, by the perseverance and energy of German merchants, who have known how to accommodate themselves to the new demands of a population impoverished by revolution and civil wars. German commerce has benefited by the influence of the German railways. There are now in Venezuela 852 kilometers (529 miles) of railway in activity. The chief one is the railway of 40 kilometers (25 miles) which joins Caracas (with a population of 72,500) to the port of La Guaira, passing through an extremely mountainous country. Venezuela possesses an immense territory—twice as large as France. With its mining industries—for there are rich gold mines—its cattle raising, and its agriculture it can boast of almost boundless resources. It can raise several crops of corn in the same year, but the most characteristic product is the Caracas cacao, as the purest and best cacao is called. France has received a large share of this export.

Exports of cacao.

Year.	Total exports.	Exports to France.
	*Met. tons.**	*Met. tons.**
1891	21,338	5,163
1895	32,814	5,640
1900	32,752	5,856
1901	32,849	4,776

* 1 metric ton = 2,204 pounds.

The total value of the exports of Venezuelan coffee nearly equals that of cacao. Both industries have suffered from lack of manual labor and from the disorders caused by the civil war.

Platinum in Siberia.—The Moniteur Officiel du Commerce, Paris, February 13, 1903, says:

The annual consumption of platinum in the world is estimated at 7,525 kilograms (16,591 pounds). The demand for this metal is increasing in proportion to the development of industries in which it is indispensable and where platinum can not be replaced by any other metal. The progress of electric lighting, physics, and chemistry explains the continually growing demand for platinum. The world produces only 12,983 pounds, leaving a deficit of 3,608 pounds, which is supplied by the recasting of old, damaged, out-of-date articles, utensils, and instruments. Fourteen years ago, there was scarcely any sale for platinum in Paris; since then, the price of this metal has advanced continuously. Thus, from $94 per kilogram (2.2 pounds) it has increased to $156, $219, $281, $344, and $389 per kilogram, until in 1901 platinum sold for $453 to $500 per kilogram, raw and not refined. It will, in a short time, perhaps reach the price of pure gold. The price will, however, remain stationary for some time, because gold will replace platinum in certain industries. The tendency of the production of platinum is to decrease. In 1900, the Ural produced only 10,472 pounds in place of the 12,983 pounds which the market expected. This is not astonishing, as the platinum mines in the Ural are concentrated on two small rivers and may easily become exhausted. One London house monopolizes all the platinum of the Ural, with the aid of its agents. In Ekaterinburg (the point at which all the platinum arrives from the north), four houses, which do not compete with each other, buy the platinum for export. Russia has no foundry for refining this metal, and it is exported raw.

Foreign Trade of Bulgaria in 1902.—The Bulgarian Staatszeitung (quoted by the Nachrichten für Handel und Industrie, Berlin, February 19, 1903) says that the share of the most important countries in the Bulgarian foreign trade for 1902, compared with 1901, was:

Country.	Imports.		Exports.	
	1902.	1901.	1902.	1901.
Total	$13,750,478	$13,518,492	$20,011,205	$15,974,610
Austria-Hungary	3,501,406	3,325,004	1,591,285	1,400,215
Great Britain	2,936,688	2,685,981	4,728,307	3,063,875
Belgium	383,491	461,656	3,687,651	2,118,175
Germany	1,651,308	1,896,997	2,047,537	1,698,207
Turkey	2,137,861	1,941,966	4,286,723	4,714,797
France	763,894	738,611	1,476,836	939,524

The principal articles of import in 1902 were:

Article.	Value.	Article.	Value.
Textile goods	$5,501,079	Rosin, mineral oils, etc	$485,009
Metals and metal goods	1,272,642	Paper, manufactures of	415,722
Colonial wares	922,926	Stone, china, and glass ware	371,525
Leather and manufactures of	862,517	Wood, manufactures of	350,874
Machines, tools, etc	752,700	Dyes, dyestuffs, and varnish	279,078
Oils, fat, and wax, and manufactures of	590,580	Animal food products	271,551
		Preserved and canned foods	196,860

The leading articles of export in 1902 were:

Article.	Value.	Article.	Value.
Wheat	$5,500,693	Flour	$512,415
Maize	3,663,140	Oil of roses	503,537
Eggs	1,272,256	Oats	446,023
Rape seed	1,207,601	Silk cocoons	423,249
Barley	1,105,890	Tobacco (leaf) and manufactures of	359,752
Rye	628,794	Ordinary woolen stuffs	320,959
Live animals	1,100,293	Hides and skins	539,242

Commercial Situation of Portugal.—The following is summarized from the Revue du Commerce Extérieur, Paris, January 24, 1903:

The financial condition of Portugal has somewhat improved, the advance in exchange coinciding with the general improvement of business. The imports of colonial products doubled in the period between 1892 and 1900, while the exportation to the colonies tripled. Brazil has, however, more influence over the Portuguese market than even the important colonies; whether Empire or Republic, she has always been the market for the best part of Portugal's natural products. She is the regulator of trade conditions, which are considered prosperous when the Brazilian and colonial markets open wide their doors to Portuguese products and poor when the harvest or the market price of coffee is unsatisfactory. This fact appears strange when it is considered that England has a share of Portuguese exportation two or three times greater than Brazil, notably in the export of port wines. The culture of the vine has suffered greatly of late from phylloxera and Portugal has also lost the French market for her ordinary wines, which, for lack of a treaty, must pay the duties of the maximum tariff.

The increase in her resources has permitted Portugal to demand a more considerable stock of goods from European countries. Germany has been quick to avail herself of this fact, and has proven a formidable rival to Great Britain, while her imports to-day exceed those of France. In 1901, France exported goods to Portugal to the value of $3,896,091. The principal articles were: Woolen goods, $469,183; novelties, $222,915; sugar, $184,315; machines and pieces of machinery, $186,438; tissues of silk and articles of leather, $164,629. In 1901, out of 20 automobiles introduced into Portugal, 18 were of French origin; of 512 bicycles, 151 came from France. In general, the demand for hardware, glass and porcelain, rubber goods, and articles of copper is good. Lisbon is a prosperous city, and articles of luxury are in demand.

New Railways in India.—The Moniteur Officiel du Commerce, Paris, February 6, 1903, says:

The secretary of state for India has just authorized the construction of a railway from Saidapet, a station of the South Indian Railway, to the junction of the Madras Railway. This new line will be called the Marina loop of the South Indian Railway, of which road it will form a part. It will be 8.38 miles long, with gauge of 1 meter (1.09 yards). The cost of construction will be 1,491,991 rupees ($483,407). The construction of a line from Golakgary, a station on the prolongation of the Eastern Bengal State Railway, to a terminus on the bank of the River Brahmaputra, opposite Gaukati, has also been authorized. This line will be 151 miles long; also of 1-meter gauge. The cost of construction is estimated at 9,231,245 rupees ($2,990,923) and the work is to be under the control of the director of state railways. The Indian government has also authorized the preliminary studies of three lines:

1. A road from Dindigul, via Palni and Tirupur, to Satyamangalam, with a branch line from the latter point to Mettupalaiyam; the whole line, including the branch, will be about 135 miles. This work is to be under the direction of the South Indian Railway Company.

2. A line which will start at Khurja, on the East Indian Railway, and terminate at Hapur, a station on the Oudh and Rohilkhand Railway. The line will be 37 miles long. The survey is to be made under the direction of the East Indian Railway.

3. A line from Vizamgam to Malia, of about 80 miles in length; the studies to be made by the Bombay-Baroda and Central India Railway.

INDEX.

VOL. LXXI—NOS. 268, 269, 270, AND 271.

Acetylene, alcohol from, 157.
Actinolite, Canada, 607.
Adelaide, harbor works, 602.
Aërial wires, France, repairing by automobile, 390.
Africa:
    Cotton, French cultivation, 581.
    Egypt, fuel, liquid, 470.
    Egypt, Nile reservoir, 588.
    German commerce, 468.
    Gold Coast Railway, 144.
    Gold Coast trade (1901), 469.
    Lourenço Marquez, lumber and timber trade, 439.
    Lourenço Marquez, mosquito screens, 463.
    Railway construction, 438.
    Suez, commercial movement, 471.
    Togoland, German, development, 242.
Africa, British West, cotton growing, 585.
Africa, German East:
    Cotton, 580.
    Gold mining, 614.
Africa, Portuguese East:
    Beira, trade, 586.
    Railway, 586.
Africa, Portuguese West:
    Railway, British, 161.
    Railway, State, contract, 462.
Africa, South:
    Bricks, 311.
    Cape Colony, automobiles, 25.
    Cape Colony, portable houses, demand, 160.
    Commercial agent, Canadian, 315.
    Johannesburg, engines, traction, demand, 160.
    Railway, 586.
    Steamship line to Scandinavia, 160.
Agricultural banking system, Bahia, 206.
Agricultural congress, Rome, 612.
Agricultural industry, Japan, 306.
Agriculture, Honduras, 523.
Alcohol:
    From acetylene, 157.
    From Jerusalem artichokes, France, 76.
Alcohol motors, Germany, 76.
Alger, W. E. (consul, Puerto Cortes):
    Capital, Honduras, opportunities, 201.
    Imports, Puerto Cortes, 605.
    Postal parcels for Honduras, packing, 152.
Algeria, commerce (1901), 167.
Almond harvest, Tunis, 161.
America, South, steamship service with Germany, new, 151.
Amherstburg-Windsor electric railway, 450.
Ammunition, United States, France, 315.
Anglo-American trade, general review, 296.
Animal industry, Slavonia, 158.
Anthracite coal, British Columbia, 464.
Antisocialistic society, Sweden, 464.
Apia, waterworks, 141.
Apiculture, exposition, Vienna, 609.
Arabic typewriters, 244.
Arbitration, labor, British Columbia, proposed, 451.
Architectural contest, Greece, 454.
Architecture, street, Paris, 92.
Argentine meat, England, 157.
Argentine Republic:
    Automobiles, 17.
    Buenos Ayres, exposition, international hygiene, 161.
    Buenos Ayres, strike, 444.
    Copper, silver, and gold, 493.
    Rio de la Plata, navigation, 211.
Artichokes, Jerusalem, alcohol from, France, 76.

Asia, automobiles, 20.
Asia, central, cotton yield (1902), 615.
Asia Minor, Syria, dredge, opening, 615.
Athens, exposition, international, 99.
Atwell, W. P. (consul, Roubaix):
  Coal strike, France, 92.
  Cocoons, colored, production, 574.
  Cotton growing, British West Africa, 585.
  Wages, France, 85.
Auction, quinine, Batavia, 306, 463, 615.
Australasia:
  Automobiles, 23.
  Wool production, 601.
Australia:
  Adelaide harbor works, 602.
  Apparatus for arresting fire in ships' holds, 570.
  Cable to London, completion, 316.
  Mother-of-pearl-shell industry, 593.
  New South Wales, coal production, 602.
  New South Wales, copper, 138.
  Queensland, tin, 312.
  Railway, transcontinental, 600.
  Tariff changes, 137.
  Wheat, scarcity, 316.
Austria-Hungary:
  Automobile regulations, Austria, 28.
  Automobiles, Austria, 1.
  Commerce (1902), 540.
  Export union, Hungary, proposed, 461.
  Exposition, Vienna, apiculture, 609.
  Marble, Hungary, 609.
  Navy an aid to commerce, 254.
  Pins, safety, Hungary, 618.
  Porcelain figures, old, Vienna, 425.
Automatic outside brake for trains, 266.
Automobile exposition, French, 386.
Automobile, new, Germany, 46.
Automobile regulations:
  Austria, 28.
  Belgium, 31.
  Europe, 28.
  France, 33.
  Germany, 38.
  Netherlands, 43.
Automobile show, Paris, United States exhibits, 388.
Automobiles:
  Argentine Republic, 17.
  Asia, 20.
Automobiles—Continued.
  Australasia, 23.
  Austria, 1.
  Belgium, 3.
  Brazil, 17.
  British India, 20.
  Canada, 16.
  Canary Islands, 27.
  Cape Colony, 25.
  Chile, 18.
  China, 22.
  Denmark, 4.
  Europe, 1.
  Europe, railway, 392.
  France, 5.
  France, trade, 163.
  Germany, 7.
  Germany, new, 46.
  Great Britain, 8.
  Greece, 9.
  Guadeloupe, 617.
  Italy, 9.
  Latin America, 17.
  Mexico, 18.
  Netherlands, 10.
  New South Wales, 23.
  New Zealand, 24.
  Russia, 13.
  Spain, 13.
  Straits Settlements, 22.
  Sweden, 14.
  Switzerland, 15.
  United States, Malta, 577.
  Victoria, 25.
Ayers, J. M. (consul, Rosario):
  Automobiles, Argentine Republic, 17.
  Copper, silver, and gold, Argentine Republic, 493.
Aymé, L. H. (consul, Guadeloupe):
  Automobiles, Guadeloupe, 617.
  Bank exchange rate, Guadeloupe, 617.
  Sugar crop, Guadeloupe, 616.
  Wireless telegraphy, Martinique and Guadeloupe, 604.

Bachelder, L. A. (vice-consul, Auckland), automobiles, New Zealand, 24.
Baehr, M. J. (consul, Cienfuegos), sugar crop, Santa Clara, Cuba, 521.
Bahia, banking system, agricultural, 206.

Baker, O. H. (consul, Sydney):
  Automobiles, New South Wales, 23.
  Copper, New South Wales, 138.
Bank exchange rate, Guadeloupe, 617.
Bank of France, 413.
Banking system, agricultural, Bahia, 206.
Banks, Salvador, 313.
Barbados, communication with, 152.
Bardel, W. (consul, Bamberg), factories, Swiss, Germany, 544.
Barlow, A. D. (consul-general, Mexico City):
  Automobiles, Mexico, 18.
  United States enterprises, Mexico, 169.
Bartleman, R. M. (consul, Valencia), railway material, Spain, opening, 255.
Batavia, quinine auction, 306, 463, 615.
Beef supplies, Great Britain, 399.
Beet-seed cultivation from imported mother seed, 109.
Beira, trade, 586.
Belgium:
  Automobile regulations, 31.
  Automobiles, 3.
  Brussels and Charleroi, canal, 315.
  Brussels, congress, international dairy, 612.
  Brussels, congress, international hygiene and demography, 148.
  Ghent, brewery, United States, 280.
  Ghent, exhibition, food stuffs, 428.
  Lumber trade, 280.
  Rock-salt mine, 316.
Bergh, R. S. S. (consul, Gothenburg):
  Industrial combinations, Sweden, 462.
  Lumber companies, Sweden, combination, 467.
  Steamship line, Scandinavian-South African, 160.
Berliner, S. (consul, Teneriffe):
  Automobiles, Canary Islands, 27.
  Cable between Canary Islands and Spain, 157.
Berne, Postal Union, monument, design, 310.
Bicycle export, Germany, 264.
Bicycles, France, trade, 163.
Bigham, W. R. (consul-general, Cape Town):
  Automobiles, Cape Colony, 25.
  Bricks, South Africa, 311.
  Commercial agent, Canadian, South Africa, 315.
Bittinger, J. L. (consul-general, Montreal):
  Automobiles, Canada, 16.
  Stationery goods, Canada, 121.
  United States capital, Canada, 115.
Blind, Portugal, new industry, 611.
Blockade, Venezuelan ports, 312, 446.
Books, Chinese, duty, 164.
Boyle, J. (consul, Liverpool):
  Coal industry, 94.
  Great Britain and United States, trade, general review, 296.
  Timber, vulcanized, England, 610.
Brake for trains, automatic outside, 266.
Bray, J. P. (consul-general, Melbourne):
  Automobiles, Victoria, 25.
  Pacific cable, completion, 316.
  Tariff changes, Australia, 137.
  Wheat scarcity, Australia, 316.
  Wool production, Australasia, 601.
Brazil:
  Automobiles, 17.
  Bahia, banking system, agricultural, 206.
  Cacao crop (1902), 604.
  Copper, silver, and gold, 494.
  Gutta-percha industry, 205.
  Revenue bill (1903), 522.
  Revenue bill, 1903 (correction), 619.
  Rubber crop, 204.
  Steamship service with Germany, 151.
Brazil and Germany, carrying trade, 151.
Bremen, cotton exchange, new, 544.
Brewery, United States, Ghent, 280.
Bricks:
  Sand, France, 408.
  South Africa, 311.
Bridgman, G. H. (consul, Kingston), shoes, United States, Jamaica, 617.
Briquette machinery, German, United States, 269.
Briquettes, waterproof, Germany, 159.
British Columbia:
  Coal, anthracite, 464.
  Labor arbitration, proposed, 451.

British Columbia—Continued.
  Railway extensions, 451.
  Salmon production, 531.
British India:
  Automobiles, 20.
  Forest administration, 359.
British industries, credits and general trade terms, 286.
Brittain, J. I. (consul, Kehl), eggs, fresh, Germany, plan for guaranteeing, 613.
Brunot, H. S. (consul, St. Etienne), textile industry, St. Etienne, 418.
Brush, H. W. (consul, Niagara Falls, Ontario), Niagara power, development, 448.
Brussels:
  Congress, international dairy, 612.
  Congress, international, hygiene and demography, 148.
Brussels and Charleroi, canal, 315.
Brussels conference and French sugar, 382.
Buck, A. E. (minister, Tokyo), tariff, new, Japan, 130.
Buenos Ayres:
  Exposition, international hygiene, 161.
  Strike, 444.
Builders' accessories, British inquiry, 159.
Bulgaria, foreign trade (1902), 621.

Cable steamer, Germany, new, 461.
Cables:
  Australia to London, completion, 316.
  Between Canary Islands and Spain, 157.
  Trans-Pacific, 168.
Cacao crop, Brazil (1902), 604.
Cacao, import, Samoa, 154.
Caldwell, J. C. (consul, San José), cement and pipes, Costa Rica, duty, 152.
Canada:
  Amherstburg-Windsor electric railway, 450.
  Automobiles, 16.
  British Columbia, coal, anthracite, 464.
  British Columbia, labor arbitration, proposed, 451.
  British Columbia, railway extensions, 451.
Canada—Continued.
  British Columbia, salmon production, 531.
  Cattle, United States, embargo, 314.
  Forests, 526.
  Molybdenum and actinolite, Ontario, 607.
  Montreal, steamship line to Rotterdam, 607.
  Niagara power, development, 448.
  Ottawa, mica plant, 314.
  Peat-fuel operations, 124.
  Stationery goods, 121.
  Toronto, Niagara Falls power, 606.
  United States capital, 115.
  United States capital in bank stock of, 212.
  Vancouver, Chinese enterprise, 465.
  Yukon, machinery, 606.
Canada, Northwest, immigration, 452.
Canada, W. W. (consul, Veracruz), wheat, Mexico, duty, 618.
Canadian commercial agent, South Africa, 315.
Canal, Brussels and Charleroi, 315.
Canary Islands:
  Automobiles, 27.
  Cable to Spain, 157.
Canned goods, Germany, opening, 163.
Cape Colony:
  Automobiles, 25.
  Houses, portable, demand, 160.
Capital, French, in foreign countries, 89.
Capital, Honduras, opportunities, 201.
Carleton, A. E. (consular agent, Almeria):
  Mining enterprise, Spain, new, 460.
  Silkworm, Spain, 418.
Cattle:
  French, new markets, 102.
  Importation, Cuba, 192.
  United States, Canada, embargo, 314.
Caucasus:
  Highways, 317.
  Tea culture, 455.
Ceara rubber, Nicaragua, 525.
Cement, Costa Rica, duty, 152.
Central Asia, cotton yield (1902), 615.
Ceramic industry, Germany, 77.
Cereals, winter crop, Russia, 432.
Chamber of commerce, German, Tsintau, 463.

Charleroi and Brussels, canal, 315.
Chemnitz, United States manufactures, 263.
Chester, F. D. (consul, Budapest):
  Animal industry, Slavonia, 158.
  Export union, Hungary, proposed, 461.
  Hungarian firm, United States, 466.
  Marble, Hungary, 609.
  Safety pins, Hungary, 618.
  Trade, Slavonia, 424.
Chile:
  Automobiles, 18.
  Copper, silver, and gold, 501.
China:
  Automobiles, 22.
  Books, duty, 164.
  Dalny, Russia's eastern port, 456.
  Paris to Pekin, through service, 97.
  Tsintau, chamber of commerce, German, 463.
  Well-boring machines, opening, 532.
China-Java-Japan steamship line, 156.
China, Russian, mining, 534.
Chinese enterprise, Vancouver, 465.
Circulars, Germany, 608.
Citizenship, Cuba, 195.
Civil-marriage law, Ecuador, 444.
Clayton, P. (ambassador, Mexico):
  Financial measures, Mexico, 176.
  Import duties, Mexico, new, 177.
Coal:
  Anthracite, British Columbia, 464.
  Industry, 94.
  Industry, Russia, 149.
  Production, New South Wales, 602.
  Strike, France, 92.
Coal-tar-color industry, Germany, 265.
Coaling stations, Seychelles, 311.
Cocoons, colored, production, France, 574.
Cod fishermen, United States, opportunity, France, 562.
Coke production, rational methods, value, 400.
Cole, C. L. (consul-general, Dresden):
  Automobile regulations, Germany, 42.
  Exposition, municipal government, Dresden, 609.
Colombia:
  Commercial legislation, 605.
  Copper, silver, and gold, 510.
Colombia—Continued.
  Export duties, 200, 616.
  Ice, price, 162.
  Import duties, 466.
  Paper suitable for bills, 616.
  Taxes, reduction, 465.
  Tonnage dues, 162.
  Treaty of peace, 198.
Colonial finances, German, 613.
Colonies:
  French, 434.
  German, newspapers, 579.
Commercial agent, Canadian, South Africa, 315.
Commercial navigation department, Russia, 308.
Commercial school, Tiflis, 536.
Concessions, mining, Nicaragua, 458.
Congress:
  Agricultural, Rome, 612.
  International dairy, Brussels, 612.
  International, hygiene and demography, Brussels, 148.
Consular reports transmitted to other Departments, 164, 318, 467, 619.
Contract, railway, State, Portuguese West Africa, 462.
Copper:
  Argentine Republic, 493.
  Brazil, 494.
  Chile, 501.
  Colombia, 510.
  Ecuador, 512.
  Honduras, 513.
  New South Wales, 138.
  Nicaragua, 515.
  Paraguay, 516.
  Salvador, 516.
  Siberia, 456.
  Sulphate, Greece, demand, 317, 424.
  Uruguay, 520.
Copyright agreement, Spain and United States, 255.
Coral, Japan, 614.
Costa Rica, cement and pipes, duty, 152.
Cotton:
  Africa, French cultivation, 581.
  German East Africa, 580.
  Germany, new source, 434.
  Self-ignition, 571.
  Yield, central Asia (1902), 615.
Cotton exchange, Bremen, new, 544.
Cotton growing, British West Africa, 585.

Cotton textiles, Italian, Roumania, 472.
Covert, J. C. (consul, Lyons):
  Brussels conference and French sugar, 382.
  Capital, French, in foreign countries, 89.
  Currency changes, Indo-China, proposed, 598.
  Hours of labor, France, reduction, 88.
  Phylloxera, Italy, 105.
  Silk industry, France, 260.
  Trade conditions, Tonkin, 142.
Creevey, E. A. (consul, Glauchau):
  Weavers' strike, Meerane, 262.
  Weaving school, Glauchau, 261.
Crete, foreign trade, 168.
Crops:
  Cacao, Brazil (1902), 604.
  Grain, Russia, 149.
  Rubber, Brazil, 204.
  Sugar, estimates (1902–3), 108.
  Sugar, Guadeloupe, 616.
  Sugar, Santa Clara, Cuba, 521.
  Sugar, Santiago de Cuba, 197.
  Winter cereals, Russia, 432.
Cuba:
  Cattle importation, 192.
  Citizenship, 195.
  Customs tariff, 440, 458.
  Engineer titles, 194.
  Exhumation and removal of bodies, 153.
  Foreign trade, 113.
  German trade, 150.
  Habana, sanitary condition, 188.
  Insurance companies, foreign, 161.
  Ports, open, 153.
  Presidential message, 178.
  Railway, Central, completion, 459.
  Rural guard, reorganization, 112.
  Santa Clara, sugar crop, 521.
  Santiago de Cuba, sugar crop, 197.
  Sugar production, 111.
  United States vs. European trade, 153.
  Uruguayan commerce, 520.
Culver, H. S. (consul, London, Ontario), forests, Canada, 526.
Currency changes:
  Indo-China, proposed, 598.
  Siam, 599.
  Straits Settlements, proposed, 598.
Custom formalities, Russo-Chinese frontier, 457.
Custom-houses, Persia, changes, 316.
Customs duties payable in gold, Nicaragua, 313.
Customs revenue, Dominican Republic, 459.
Customs tariff:
  Cuba, 440, 458.
  Germany, changes, 147.
Cyprus, harbor and railway, 460.

Dairy congress, international, Brussels, 612.
Dalny, Russia's eastern port, 456.
Davidson, T. (vice and deputy consul-general, Singapore):
  Currency changes, Straits Settlements, proposed, 598.
  Mother-of-pearl-shell industry, 593.
Davis, W. R. (consul, Alexandretta), dredge, Syria, opening, 615.
De Castro, H. (consul-general, Rome), automobiles, Italy, 9.
De Soto, H. (vice-consul, Warsaw):
  Dredges, United States, Russia, opening, 619.
  Potato-starch machinery, Russia, opening, 610.
Demography, congress, international, Brussels, 148.
Denmark, automobiles, 4.
Diederich, H. W. (consul, Bremen):
  Beet-seed cultivation from imported mother seed, 109.
  Cotton exchange, Bremen, new, 544.
  Cotton, self-ignition, 571.
  Fire extinguisher, Germany, 82.
  Fruit, tropical, import, Germany, 541.
  Shipbuilding, German, progress on the Weser, 379.
  Sugar crop, estimates (1902–3), 106.
  Sugar production, Europe, 385.
  Sugar production, Europe, estimates, 256.
Dillingham, F. (consul, Auckland), labor laws, New Zealand, 332.
Dominican Republic:
  Customs revenue, 450.
  Import duties, 129.
  Santo Domingo, import duties, 313.

Donaldson, C. (consul, Managua):
  Copper, silver, and gold, Nicaragua, 515.
  Customs duties payable in gold, Nicaragua, 313.
  Loan, Nicaragua, 443.
  Mining concessions, Nicaragua, 458.
Dredges:
  Syria, opening, 615.
  United States, Russia, opening, 619.
Dresden, exposition, municipal government, 609.
Dried goods, Germany, opening, 163.
Drinking water, purifying by electricity, 315.
Dudley, I. B. (minister, Lima), railway projects, Peru, 127.
Dudley, L. E. (consul, Vancouver):
  Chinese enterprise, Vancouver, 465.
  Coal, anthracite, British Columbia, 464.
  Immigration, Northwest Canada, 452.
  Labor arbitration, British Columbia, proposed, 451.
  Machinery, Yukon, 606.
  Railway extensions, British Columbia, 451.
Dues, tonnage, Colombia, 162.
Dutch Guiana, railway, State, 162.
Duties:
  Cement and pipes, Costa Rica, 152.
  Chinese books, 164.
  Customs, payable in gold, Nicaragua, 313.
  Export. Colombia, 200, 616.
  Foreign wines, Vladivostock, 317.
  Grain, Great Britain, 291.
  Import, Colombia, 466.
  Import, Dominican Republic, 129.
  Import, Santo Domingo, 313.
  New import, Mexico, 177.
  Wheat. Mexico, 618.
  Wheat, Mexico, reduction, 314.

Ecuador:
  Civil-marriage law, 444.
  Copper, silver, and gold, 512.
  Investment, opportunities, 209.
  Lighting, Guayaquil, bids, 208.
  Physicians, 162.
  Quito, machinery, United States, demand, 465.
Eggs, fresh, Germany, plan for guaranteeing, 613.
Egypt:
  Fuel, liquid, 470.
  Nile reservoir, 588.
  Typewriters, Arabic, 244.
Ehrman, F. (vice-consul-general, Panama), ice, Colombia, price, 162.
Electric fire pump, Rouen, 83.
Electric-power distribution, Great Britain, 564.
Electric railway, Amherstburg-Windsor, 450.
Emory, F. (chief, Bureau of Foreign Commerce), foreign commerce, United States (1902), 323.
Engineer titles, Cuba, 194.
Engines:
  Fire, La Rochelle, 163.
  Traction, Johannesburg, demand, 160.
England:
  Bobbins, bulging, device to prevent, 303.
  Furniture, knockdown, 317.
  Locomotives, United States, 393.
  Manchester exports to United States, 101, 398.
  Meat, Argentine, 157.
  North Sea fisheries, 546.
  Nottingham, lace trade, 303.
  Shoes, United States, 466.
  Timber, vulcanized, 610.
  United States, popular wares, 101.
Errata, revenue bill, Brazil (1903), 619.
Europe:
  Automobile regulations, 28.
  Automobiles, 1.
  Railway automobiles, 392.
  Sugar production, estimates, 256, 385.
European vs. United States trade, Cuba, 153.
Evans, H. C. (consul-general, London):
  Cotton growing, British West Africa, 585.
  Fire exhibition, London, 308.
  Flour mills. Ireland, 146.
  Motor-cycle trade, Great Britain, 48.
  Railway. Gold Coast, 144.
Exchange. cotton. Bremen, new, 544.

Exhibition:
  Fire, protection, London, 308.
  Food stuffs, Ghent, 428.
  Photography, St. Petersburg, 457.
  Russian historical attire, 429.
  Shoemakers, Hamburg, 427.
Exhibits, United States, Paris automobile show, 388.
Exhumation and removal of bodies, Cuba, 153.
Export, bicycle, Germany, 264.
Export duties, Colombia, 200, 616.
Export union, Hungary, proposed, 461.
Exporters to Scotland, advice, 283.
Exports:
  German, to Morocco, 578.
  German, to United States, 100, 543.
  Mahogany, Nicaragua, 605.
  Manchester to United States, 101, 398.
Exposition:
  Apiculture, Vienna, 609.
  Automobile, French, 386.
  Hygienic-milk supply, Hamburg, 80.
  Industrial, Rheims, 259.
  International, Athens, 99.
  International, hygiene, Buenos Ayres, 161.
  Municipal government, Dresden, 609.
  Welfare of labor, Germany, 464.
Extinguisher, fire, Germany, 82.

Factories, Swiss, Germany, 544.
Fair, Nizhni Novgorod, 320.
Fee, W. T. (consul, Bombay):
  British India, automobiles, 20.
  Oil motors, India, 307.
  Pepper cultivation, India, 590.
  United States trade, India, 305.
Fiber, Yucatan, sisal, 473.
Finances, German, colonial, 613.
Financial measures, Mexico, 176.
Finch, W. R. (minister, Montevideo), mortality, Paraguay, 163.
Fire engines, La Rochelle, 163.
Fire exhibition, London, 308.
Fire extinguisher, Germany, 82.
Fire in ships' holds, apparatus for arresting, 570.
Fire pump, electric, Rouen, 83.
Firemen's competition, Havre, 611.
Fish, live, carrying device, Switzerland, 97.
Fish trade, Norway, 281.
Fisheries, North Sea, 546.
Fishermen, United States, cod, opportunity, France, 562.
Fleming, R. (consul, Edinburgh):
  Exporters to Scotland, advice, 283.
  Iron and steel trades, Scotland, 395.
  Joint-stock companies, Scotland, 396.
Florence, industries, 471.
Florida vs. Polynesian phosphate, 156.
Flour mills, Ireland, 146.
Flour, United States, Malta, 576.
Flushing, Netherlands, steel factory, United States, 618.
Food, new, live stock, Germany, 79.
Food stuffs, exhibition, Ghent, 428.
Forest administration, British India, 359.
Forestry, Germany, 81.
Forests, Canada, 526.
Formosa, sugar industry, 322.
Foster, J. G. (consul-general, Halifax), United States capital in Canadian bank stock, 212.
Fowler, J. (consul, Chefoo), automobiles, China, 22.
Fr. Buzzi d'J, request for trade information, 466.
France:
  Alcohol from Jerusalem artichokes, 76.
  Automobile exposition, 386.
  Automobile regulations, 33.
  Automobiles, 5.
  Bank of, 413.
  Bicycles and automobiles, trade, 163.
  Bricks, sand, 408.
  Capital in foreign countries, 89.
  Cattle, new markets, 102.
  Coal strike, 92.
  Cocoons, colored, production, 574.
  Cod fishermen, United States, opportunity, ~~562.~~
  Colonies, 434.
  Commerce (1902), 472.
  Fruit, photographs on, 416.
  Havre, firemen's competition, 611.
  Hours of labor, reduction, 88.
  La Rochelle, engines, fire, 163.
  Marseilles, oil and seed trade (1902), 572.

France—Continued.
  Marseilles, wool trade, 416.
  Metric system, 413.
  Paris, automobile show, United Stat~~es exhibits, 388.~~
  Paris, street architecture, 92.
  Paris to Pekin, through service, 97.
  Peanuts, demand, 611.
  Rheims, exposition, industrial, 259.
  Rouen, fire pump, electric, 83.
  Rouen-United States steamship communication, 406.
  St. Etienne, textile industry, 418.
  Sardine industry, 257.
  Shotguns and ammunition, United States, 315.
  Silk industry, 260.
  Sugar and Brussels conference, 382.
  Superphosphates, United States, demand, 309.
  United States trade, 409.
  Wages, 85.
  Water power, 402.
  Wires, aërial, repairing by automobile, 390.
  Yacht, United States, ~~wanted, 309.~~
Frankenthal, A. L. (consul, Berne), automatic outside brake for trains, 266.
Frankenthal, L. J. (vice-consul, Berne), tariff, new, Switzerland, vote on, 466.
Freeman, J. C. (consul, Copenhagen), automobiles, Denmark, 4.
French cotton cultivation, Africa, 581.
Fruit cleansing, Germany, 146.
Fruit-handling apparatus, New Zealand, demand, 154.
Fruits:
  Dried, sulphuric acid on, 454.
  Photographs on, 416.
  Tropical, import, Germany, 541.
Fuel:
  Liquid, Egypt, 470.
  Peat, operations, Canada, 124.
Furniss, H. W. (consul, Bahia):
  Banking system, agricultural, Bahia, 206.
  Copper, silver, and gold, Brazil, 494.
  Revenue bill, Brazil (1903), 522.
  Revenue bill, Brazil, 1903 (correction), 619.
Furniture:
  Knockdown, England, 317.
  United States, inquiry, Russia, 317.
Georgii, A. (consul-general, Stockholm), automobiles, Sweden, 14.
German briquette machinery, United States, 269.
German Togoland, development, 242.
German trade, Cuba, 150.
Germany:
  African commerce, 468.
  Alcohol motors, 76.
  Automobile, new, 46.
  Automobile regulations, 38.
  Automobiles, 7.
  Beet-seed cultivation from imported mother seed, 109.
  Bicycle export, 264.
  Bremen, cotton exchange, new, 544.
  Briquettes, waterproof, 159.
  Cable steamer, new, 461.
  Canned and dried goods, opening, 163.
  Ceramic industry, 77.
  Chemnitz, United States manufactures, 263.
  Circulars, 608.
  Coal-tar-color industry, 265.
  Coke production, rational methods, value, 400.
  Colonial finances, 613.
  Colonies, newspapers, 579.
  Commerce and industries (1901), 55.
  Cotton, new source, 434.
  Cotton, self-ignition, 571.
  Customs declaration as to country of origin, 608.
  Dresden, exposition, municipal government, 609.
  Exports to Morocco, 578.
  Exports to United States, 100, 543.
  Exposition, welfare of labor, 464.
  Factories, Swiss, 544.
  Fire extinguisher, 82.
  Food, new, for live stock, 79.
  Forestry, 81.
  Fruit, cleansing, 146.
  Fruit, tropical, import, 541.
  Glass manufacture, 310.
  Glauchau, weaving school, 261.
  Hamburg, exhibition, shoemakers', 427.
  Hamburg, exposition, hygienic-milk supply, 80.
  Hamburg, wood, import, 279.
  Lumber trade, foreign, 159.

Germany—Continued.
  Meerane, weavers' strike, 262.
  Metric weights and measures, 374.
  Milk powder, 78.
  Plan for guaranteeing fresh eggs, 613.
  Prussia, income-tax statistics, 278.
  Prussia, steam power (1902), 426.
  Railway professorship, 612.
  Railways, Prussian, State, heavier rails, 310.
  Railways, safety device, new, 363.
  Rhenish lumber market, 278.
  Shipbuilding progress on the Weser, 379.
  Steamship service with Brazil, 151.
  Steamship service with South America, new, 151.
  Stettin, shipyards, reconstructed, 613.
  Sugar bill, 542.
  Sulphuric acid on dried fruit, 454.
  Tariff bill, 461.
  Tariff, customs, changes, 147.
  Tariff, new, 369.
  Trade with Venezuela, 447.
  United States salable products, 68.
  Vineyards, area, 163.
  Water, drinking, purifying by electricity, 315.
Germany and Brazil, carrying trade, 151.
Ghent:
  Brewery, United States, 280.
  Exhibition, food stuffs, 428.
Gifford, G. (consul, Basel), automobiles, Switzerland, 15.
Glass manufacture, Germany, 310.
Glauchau, weaving school, 261.
Glenny, A. W. H. (consular agent, Beira), Beira, trade, 586.
Goats, Malta, 103.
Goding, F. W. (consul, Newcastle, New South Wales):
  Coal production, New South Wales, (1902), 602.
  Fire in ships' holds, apparatus for arresting, 570.
  Tin, Queensland, 312.
Gold:
  Argentine Republic, 493.
  Brazil, 494.
  Chile, 501.
Gold—Continued.
  Colombia, 510.
  Ecuador, 512.
  Honduras, 513.
  Kamchatka, 164.
  Nicaragua, 515.
  Paraguay, 516.
  Salvador, 516.
  Uruguay, 520.
Gold Coast Railway, 144.
Gold Coast trade (1901), 469.
Gold mining:
  German East Africa, 614.
  Primorski region, Siberia, 533.
Gordon, W. D. (consular agent, Johannesburg):
  Engines, traction, Johannesburg, demand, 160.
  Houses, portable, Cape Colony, demand, 160.
Gottschalk, A. L. M. (consul, San Juan del Norte):
  Ceara rubber, Nicaragua, 525.
  Exports, mahogany, Nicaragua, 605.
Gowdy, J. K. (consul-general, Paris):
  Automobile regulations, France, 33.
  Automobiles, France, 5.
  Bank of France, 413.
  Exhibits, United States, Paris automobile show, 388.
  Sand bricks, France, 408.
  Street architecture, Paris, 92.
Grain crops, Russia, 149.
Grain, Great Britain, duty, 291.
Great Britain:
  Automobiles, 8.
  Beef supplies, 399.
  Bobbins, bulging, English device to prevent, 303.
  Builders' accessories, inquiry, 159.
  Credits and general trade terms of industries, 286.
  Electric-power distribution, 564.
  England, furniture, knockdown, 317.
  England, shoes, United States, 466.
  England, timber, vulcanized, 610.
  Grain, duty, 291.
  Ireland, mills, flour, 146.
  Iron and steel trades, 395.
  Joint-stock companies, 396.
  Locomotives, United States, England, 393.

Great Britain—Continued.
  London, fire exhibition, 308.
  Manchester exports to United States, 101, 398.
  Meat, Argentine, 157.
  Motor-cycle trade, 48.
  North Sea fisheries, 546.
  Nottingham lace trade, 303.
  Scotland, exporters to, advice, 283.
  Shipbuilding, depression, 159.
  United States goods, delayed orders, 281.
  United States popular wares, 101.
Great Britain and United States, trade, general review, 296.
Greece:
  Architectural contest, 454.
  Athens, exposition, international, 99.
  Automobiles, 9.
  Copper sulphate, demand, 317.
  Petroleum, United States, 311.
  Sulphate of copper, opening, 424.
Greene, C. C. (consul, Antofagasta), copper, silver, and gold, Chile, 506.
Greener, R. T. (commercial agent, Vladivostock):
  Gold, Kamchatka, 164.
  Mineral lake, Siberia, 316.
  Naphtha springs, Sakhalin Island, 464.
  Railway, State, Siberia, expenses, 305.
  Wines, foreign, Vladivostock, duty, 317.
Grinnell, W. F. (consul, Manchester), exports, Manchester to United States, 101, 398.
Griscom, L. C. (minister, Teheran), custom-houses, Persia, changes, 316.
Grout, J. H. (consul, Valletta):
  Automobiles, United States, Malta, 577.
  Flour and lard, United States, Malta, 576.
  Maltese goats 103
  Trade-mark regulations, Malta, 104.
Guadeloupe.
  Automobiles, 617.
  Bank exchange rate, 617.
  Sugar crop, 616.
  Wireless telegraphy with Martinique, 604.
Guayaquil, lighting, bids, 208.
Gudger, H. A. (consul-general, Panama):
  Copper, silver, and gold, Colombia, 511.
  Taxes, Colombia, reduction, 465.
Guenther, R. (consul-general, Frankfort):
  Automobile regulations, Germany, 39.
  Coal-tar-color industry, Germany, 265.
  Copper, Siberian, 456.
  Drinking water, electricity for purifying, 315.
  Railways, Germany, professorship, 612.
  Railways, Prussian State, heavier rails, 310.
  Venezuela, trade with Germany, 447.
Guiana, British, copper, silver, and gold, 513.
Guiana, Dutch:
  Copper, silver, and gold, 513.
  Railways, State, 162.
Guiana, French, copper, silver, and gold, 513.
Guinea, German New, gutta-percha, 614.
Gunsaulus, E. N. (consul, Toronto):
  Molybdenum and actinolite, Ontario, Canada, 607.
  Niagara Falls power, Toronto, 606.
  Peat-fuel operations, Canada, 124.
Gutta-percha:
  German New Guinea, 614.
  Industry, Brazil, 205.

Habana, sanitary condition, 188.
Hallatt, H. H. (acting vice-consul, Madrid), sugar production, Spain, 575.
Halstead, M. (consul, Birmingham):
  Builders' accessories, British inquiry, 159.
  Furniture, knockdown, England, 317.
  Grain, British duty, 291.
  Locomotives, United States, England, 393.
  Meat, Argentine, England, 157.
  Railway automobiles, Europe, 392.
  United States goods, delayed orders, 281.

Hamburg:
  Exhibition, shoemakers', 427.
  Exposition, hygienic-milk supply, 80.
  Wood, import, 279.
Hanna, P. C. (consul-general, Monterey), steel plant, Monterey, 606.
Harbor, Cyprus, 460.
Harbor works, Adelaide, 602.
Harder, H. (vice-consul, Stettin):
  Cable steamer, Germany, new, 461.
  Shipyards, Stettin, reconstructed, 613.
Harput, vehicles, United States, demand, 143.
Harris, E. L. (commercial agent, Eibenstock):
  Colonial finances, German, 613.
  German chamber of commerce, Tsintau, 463.
  Newspapers, German colonies, 579.
  School, commercial, Tiflis, 536.
Hart, C. B. (minister, Bogotá):
  Commercial legislation, Colombia, 605.
  Export duties, Colombia, 200, 616.
  Paper suitable for bills, Colombia, 616.
Harvest, almond, Tunis, 161.
Havre, firemen's competition, 611.
Haynes, T. (consul, Rouen):
  Aërial wires, France, repairing by automobile, 390.
  Alcohol from acetylene, 157.
  Alcohol from Jerusalem artichokes, France, 76.
  Almond harvest, Tunis, 161.
  Automobile exposition, French, 386.
  Bicycles and automobiles, France, trade, 163.
  Cattle, French, new markets, 102.
  Fire pump, electric, Rouen, 83.
  Paris to Pekin, through service, 97.
  Photographs on fruit, France, 416.
  Rouen-United States steamship communication, 406.
Heimrod, G. (consul-general, Apia):
  Import, cacao, Samoa, 154.
  Waterworks, Apia, 141.
Highways, Caucasus, 317.
Hill, F. D. (consul, Amsterdam):
  Automobiles, Netherlands, 10.
  Java-China-Japan steamship line, 156.
  Water-supply plant, Java, 155.
Historical attire, Russian, exhibition, 429.
Hogue, A. S. (vice-consul-general, Vienna), automobiles, Austria, 1.
Holaday, R. E. (consul, Santiago de Cuba):
  Railway, Central, Cuba, completion, 459.
  Sugar crop, Santiago de Cuba, 197.
Hollis, W. S. (consul, Lourenço Marquez):
  Lumber and timber trade, Lourenço Marquez, 439.
  Mosquito screens, Lourenço Marquez, 463.
Holloway, W. R. (consul-general, St. Petersburg):
  Automobiles, Russia, 13.
  Commercial navigation department, Russia, 308.
  Cotton yield, central Asia (1902), 615.
  Crop, winter cereals, Russia, 432.
  Custom formalities, Russo-Chinese frontier, 457.
  Dalny, Russia's eastern port, 456.
  Exhibition, Russian historical attire, 429.
  Gold mining, Primorski region, 533.
  Highways, Caucasus, 317.
  Iron industry, Russia, 430.
  Mining industry, Turkestan, 535.
  Mining, Russian China, 534.
  Odessa-Naples-New York steamship line, 457.
  Photography exhibition, St. Petersburg, 457.
  Railway, State, Siberia, traffic development, 362.
  Russian trade and finances (1902), 148.
  Salt mines, Iletzk, 433.
  Sugar yield, Russia, 455.
  Tariff, Russia, new, 607.
  Tea culture, Caucasus, 455.
Honduras:
  Agriculture, 523.
  Capital, opportunities, 201.

Honduras—Continued.
  Copper, silver, and gold, 513.
  Postal parcels for, packing, 152.
  Puerto Cortes, imports, 605.
  Rubber vine, 203.
  Stage-coach line, new, 459.
  Wagon road, new, 202.
Hours of labor, France, reduction, 88.
Houses, portable, Cape Colony, demand, 160.
Hughes, O. J. D. (consul-general, Coburg):
  Alcohol motors, Germany, 76.
  Cotton, German East Africa, 580.
  Gutta-percha, German New Guinea, 614.
  Lumber market, Rhenish, 278.
  Milk powder, Germany, 78.
Hungarian firm, United States, 466.
Hungary, foreign trade, 321.
Hunt, W. H. (consul, Tamatave), coaling station, Seychelles, 311.
Hurst, C. B. (consul-general, Vienna):
  Austro-Hungarian commerce (1902), 540.
  Automobile regulations, Austria, 28.
  Navy, Austrian, aid to commerce, 254.
  Old Vienna porcelain figures, 425.
Hygiene congress, international, Brussels, 148.
Hygienic-milk supply, exposition, Hamburg, 80.

Ice, Colombia, price, 162.
Iletzk, Russia, mines, salt, 433.
Immigration, Northwest Canada, 452.
Import duties:
  Colombia, 466.
  Dominican Republic, 129.
  Mexico, new, 177.
  Santo Domingo, 313.
Import trade, Persia, 165.
Imports:
  Cacao, Samoa, 154.
  Cattle, Cuba, 192.
  Morocco, from Germany, 578.
  Puerto Cortes, 605.
  Tropical fruit, Germany, 541.
  United States, from Germany, 100, 543.
  United States, from Manchester, 101, 398.
  Wood, Hamburg, 279.
Income-tax statistics, Prussia, 278.
India:
  Irrigation works, 356.
  Oil motors, 307.
  Pepper cultivation, 590.
  Railways, new, 622.
  United States trade, 305.
India, British:
  Automobiles, 20.
  Forest administration, 359.
Indo-China, currency changes, proposed, 598.
Insurance companies, foreign, Cuba, 161.
Ireland, mills, flour, 146.
Iron industry, Russia, 149, 430.
Iron trade, Scotland, 395.
Irrigation works, India, 356.
Italy:
  Automobiles, 9.
  Commercial notes from, 420.
  Florentine industries, 471.
  Odessa-Naples-New York steamship line, 457.
  Phylloxera, 105.
  Pontine marshes, reclamation, 320.
  Railway, Simplon, 405.
  Request for trade information, 466.
  Rome, congress, agricultural, 612.
  Silkworms, 419.

Jackson, F. W. (consul, Patras):
  Architectural contest, Greece, 454.
  Copper sulphate, Greece, demand, 317.
  Exposition, international, Athens, 99.
  Petroleum, United States, Greece, 311.
  Sulphate of copper, Greece, opening, 424.
Jackson, G. H. (consul, La Rochelle):
  Fire engines, La Rochelle, 163.
  Shotguns and ammunition, United States, France, 315.
  Superphosphates, United States, demand, 309.
  United States yacht wanted, 309.
Jamaica, shoes, United States, 617.
Japan:
  Agricultural industry, 306.
  Coral, 614.
  Enterprises and foreign capital, 155.

Japan—Continued.
  Steamers, new, 307.
  Tariff, 130.
Japan-China-Java steamship line, 156.
Jarvis, W. (consul, Milan), silkworms, Italy, 419.
Java:
  Batavia, quinine auction, 306, 463, 615.
  Water-supply plant, 155.
Java-China-Japan steamship line, 156.
Jenkins, J. (consul-general, San Salvador):
  Banks, Salvador, 313.
  Copper, silver, and gold, Salvador, 516.
Jerusalem artichokes, alcohol from, France, 76.
Johannesburg, engines, traction, demand, 160.
Johnson, J. H. (consul, Santos), copper, silver, and gold, Brazil, 490.
Joint-stock companies, Scotland, 396.
Jones, R. B. (vice-consul-general, Guayaquil), copper, silver, and gold, Ecuador, 512.

Kamchatka, gold, 164.
Kehl, J. E. (consul, Stettin):
  Florida vs. Polynesian phosphate, 156.
  Forestry, Germany, 81.
Kenneday, K. K. (consul, Para):
  Cacao crop, Brazil (1902), 604.
  Copper, silver, and gold, Brazil, 496.
  Rubber crop, Brazil: Gutta-percha industry, 204.

La Rochelle, engines, fire, 163.
Labor arbitration, British Columbia, proposed, 451.
Labor, hours, France, reduction, 88.
Labor laws, New Zealand, 332.
Lace trade, Nottingham, 303.
Lake, mineral, Siberia, 316.
Land, rubber, Peru, leases, 465.
Langer, J. J. (consul, Solingen):
  Circulars, Germany, 608,
  Exposition, welfare of labor, Germany, 464.
  German customs declaration as to country of origin, 608.
  Steam power, Prussia (1902), 426.
Lard, United States, Malta, 576.
Laws:
  Civil-marriage, Ecuador, 444.
  Labor, New Zealand, 332.
  Tariff, Switzerland, new, 158.
Lay, J. G. (consul-general, Barcelona), automobiles, Spain, 13.
Liefeld, B. F. (vice-consul, Freiburg), live stock, Germany, food, new, 79.
Light-houses, Zanzibar, 312.
Lincoln, G. F. (consul-general, Antwerp):
  Automobile regulations, Belgium, 31.
  Automobiles, Belgium, 3.
Listoe, S. (consul-general, Rotterdam):
  Automobile regulations, Netherlands, 43.
  Automobiles, Netherlands, 11.
  Steamship line, Rotterdam and Montreal, 607.
  Steel factory, United States, Flushing, 618.
Live stock, Germany, food, new, 79.
Loan, Nicaragua, 443.
Locomotives, United States, England, 393.
London:
  Cable to Australia, completion, 316.
  Fire exhibition, 308.
Long, J. G. (consul-general, Cairo), Nile reservoir, 588.
Lourenço Marquez:
  Lumber and timber trade, 439.
  Mosquito screens, 463.
Lumber companies, Sweden, combination, 467.
Lumber market, Rhenish, 278.
Lumber trade:
  Belgium, 280.
  Foreign, Germany, 159.
  Lourenço Marquez, 439.
Lyon, S. S. (consul, Kobé):
  Agricultural industry, Japan, 306.
  Coral, Japan, 614.
  Japan, enterprises and foreign capital, 155.
  Steamers, Japan, new, 307.

Macallister, S. A. (consul, Barbados), Barbados, communication with, 152.
McCallum, J. I. (consul-general, St. Gall), tariff law, Switzerland, new, 158.

McGinley, D. E. (consul, Athens), automobiles, Greece, 9.
Machinery:
  German briquette, United States, 269.
  Potato-starch, Russia, opening, 610.
  United States, Quito, demand, 465.
  United States, Syria, 243.
  Yukon, 606.
Machines, well-boring, China, opening, 532.
McKellip, W. A. (consul, Magdeburg), income-tax statistics, Prussia, 278.
McWade, R. M. (consul, Canton), Chinese books, duty, 164.
Mahin, F. W. (consul, Nottingham):
  Bobbins, bulging, English device to prevent, 303.
  Beef supplies, Great Britain, 399.
  Electric-power distribution, Great Britain, 564.
  Lace trade, Nottingham, 303.
  Shipbuilding, Great Britain, depression, 159.
  Shoes, United States, England, 466.
  Sugar, national consumption, 108.
  United States popular wares, England, 101.
Mahogany exports, Nicaragua, 605.
Malmros, O. (consul, Colon):
  Copper, silver, and gold, Colombia, 510.
  Import duties, Colombia, 466.
Malta:
  Automobiles, United States, 577.
  Flour and lard, United States, 576.
  Goats, 103.
  Trade-mark regulations, 104.
Manchester exports to United States, 101, 398.
Mansfield, R. E. (consul, Valparaiso):
  Automobiles, Chile, 18.
  Copper, silver, and gold, Chile, 501.
Marble, Hungary, 609.
Marine, Russian merchant (1901), 431.
Markets:
  Rhenish lumber, 278.
  New, French cattle, 102.
Marriage law, civil, Ecuador, 444.
Marseilles:
  Oil and seed trade (1902), 572.
  Wool trade, 416.
Martin, C. W. (consul, Amherstburg), railway, electric, Amhersburg-Windsor, 450.
Martin, W. (consul, Nankin), well-boring machines, China, opening, 532.
Martinique, wireless telegraphy with Guadeloupe, 604.
Mason, F. H. (consul-general, Berlin):
  Automobile regulations, Germany, 38.
  Automobiles, Germany, 7.
  Briquette machinery, German, United States, 269.
  Coke production, rational methods, value, 400.
  Exports, German, to United States, 100, 543.
  Safety device, railways, new, 363.
  Tariff, Germany, new, 369.
  United States salable products, Germany, 68.
Mayer, D. (consul, Buenos Ayres):
  Copper, silver, and gold, Argentine Republic, 494.
  Strike, Buenos Ayres, 444.
Meat, Argentine, England, 157.
Meat products, Paraguay, 445.
Meerane, weavers' strike, 262.
Merchant marine, Russian (1901), 431.
Metric system, 413.
Metric weights and measures, Germany, 374.
Mexico:
  Automobiles, 18.
  Duty, wheat, 619.
  Duty, wheat, reduction, 314.
  Financial measures, 176.
  Import duties, new, 177.
  Monterey, steel plant, 606.
  Railroads, new, 175.
  Sisal, Yucatan, fiber, 473.
  United States enterprises, 169.
  Zacaton, preparation, 442.
Meyer, G. V. L. (ambassador, Rome), Venezuelan ports, blockade, 447.
Mica plant, Ottawa, 314.
Mileage railway, Russia, 464.
Milk powder, Germany, 78.
Milk supply, hygienic, exposition, Hamburg, 80.
Miller, H. B. (consul, Niuchwang), automobiles, China, 22.
Mills, flour, Ireland, 146.

Mine, rock-salt, Belgium, 316.
Mineral lake, Siberia, 316.
Mines, salt, Iletzk, Russia, 433.
Mining:
  Gold, German East Africa, 614.
  Gold, Primorski region, Siberia, 533.
  Russian China, 534.
Mining concessions, Nicaragua, 458.
Mining enterprise, Spain, new, 460.
Mining industry, Turkestan, 535.
Moe, A. K. (consul, Tegucigalpa):
  Copper, silver, and gold, Honduras, 513.
  Rubber vine, Honduras, 203.
  Stage-coach line, Honduras, new, 459.
  Wagon road, Honduras, new, 202.
Molybdenum, Canada, 607.
Monaghan, J. F. (consul, Chemnitz):
  Automobile, new, Germany, 46.
  Automobile regulations, Germany, 40.
  Bicycle export, Germany, 264.
  Cotton, Germany, new source, 434.
  Exhibition, shoemakers', Hamburg, 427.
  Exports, Germany to Morocco, 578.
  United States manufactures, Chemnitz, 263.
  Wood, import, Hamburg, 279.
Monterey, steel plant, 606.
Morgan, H. H. (consul, Lucerne), fish, live, carrying device, Switzerland, 97.
Morocco, imports from Germany, 578.
Mortality, Paraguay, 163.
Mosquito screens, Lourenço Marquez, 463.
Mother-of-pearl-shell industry, 593.
Motor-cycle trade, Great Britain, 48.
Motors:
  Alcohol, Germany, 76.
  Oil, India, 307.
Moulton, G. H. (consul, Demerara):
  Copper, silver, and gold, 513.
  Railway, Dutch Guiana, 162.
Mowrer, F. R. (consul, Ghent):
  Brewery, United States, Ghent, 280.
  Exhibition, food stuffs, Ghent, 428.
  Lumber trade, Belgium, 280.
Municipal government exposition, Dresden, 609.
Murphy, C. A. (consular agent, Adelaide):
  Harbor works, Adelaide, Australia, 602.
  Railway, transcontinental, Australia, 600.
Murphy, G. H. (consular clerk, Frankfort):
  Brazil and Germany, carrying trade, 151.
  Cuba, German trade, 150.
  Fruit cleansing, Germany, 146.
  Steamship service, German-South American, new, 151.

Naphtha springs, Sakhalin Island, 464.
Nason, C. P. H. (consul, Grenoble), water power, France, 402.
Nast, T. (consul-general, Guayaquil):
  Investment opportunities, Ecuador, 209.
  Lighting Guayaquil, bids, 208.
  Physicians, Ecuador, 162.
Navy, Austrian, aid to commerce, 254.
Nelson, V. E. (consul, Bergen):
  Antisocialistic society, Sweden, 464.
  Ofoten Railway: Fish trade, Norway, 281.
Netherlands:
  Automobile regulations, 43.
  Automobiles, 10.
  Flushing, steel factory, United States, 618.
  Rotterdam, steamship line to Montreal, 607.
New Guinea, German, gutta-percha, 614.
New South Wales:
  Automobiles, 23.
  Coal production, 602.
  Copper, 138.
New Zealand:
  Automobiles, 24.
  Fruit-handling apparatus, demand, 154.
  Labor laws, 332.
Newspapers, German colonies, 579.
Niagara Falls power, Toronto, 606.
Niagara power, development, 448.
Nicaragua:
  Ceara rubber, 525.
  Copper, silver, and gold, 515.
  Customs duties payable in gold, 313.
  Exports, mahogany, 605.

Nicaragua—Continued.
  Loan, 443.
  Mining concessions, 458.
Nile reservoir, 588.
Nizhni Novgorod, fair, 320.
North Sea fisheries, 546.
Norton, T. H. (consul, Harput):
  Commercial conditions, Turkey in Asia, 245.
  Vehicles, United States, Harput, demand, 143.
Norway:
  Fish trade, 281.
  Ofoten Railway, 281.
Nottingham lace trade, 303.

Ofoten Railway, Norway, 281.
Oil motors, India, 307.
Oil trade, Marseilles (1902), 572.
Old Vienna porcelain figures, 425.
Ottawa, mica plant, 314.

Pacific cable, Australia to London, completion, 316.
Pagés, J. G. (vice-consul, Veracruz):
  Duty on wheat, Mexico, reduction, 314.
  Financial measures, Veracruz, 176.
  Railroads, Mexico, new, 175.
  Zacaton, preparation, Mexico, 442.
Paper suitable for bills, Colombia, 616.
Paraguay:
  Copper, silver, and gold, 516.
  Meat products, 445.
  Mortality, 163.
  Rio de la Plata, navigation, 211.
Paris:
  Automobile show, United States exhibits, 388.
  Street architecture, 92.
Paris to Pekin, through service, 97.
Patterson, R. F. (consul-general, Calcutta):
  Forest administration, British India, 359.
  Irrigation works, India, 356.
Peanuts, United States, France, demand, 611.
Pearson, R. (consul, Genoa):
  Commercial notes from Italy, 420.
  Railway, Simplon, 405.
Peat-fuel operations, Canada, 124.
Pekin to Paris, through service, 97.
Pepper cultivation, India, 590.
Persia:
  Custom-houses, changes, 316.
  Import trade, 165.
  Industrial development, 166.
Peru:
  Railway projects, 127.
  Rubber land, leases, 465.
Petroleum, United States, Greece, 311.
Phosphate, Florida vs. Polynesian, 156.
Photographs on fruit, France, 416.
Photography, exhibition, St. Petersburg, 457.
Phylloxera, Italy, 105.
Physicians, Ecuador, 162.
Pins, safety, Hungary, 618.
Pipes, Costa Rica, duty, 152.
Platinum, Siberia, 621.
Pollock, J. R. (consular agent, Fernie), railway extensions, British Columbia, 451.
Polynesian vs. Florida phosphate, 156.
Pontine marshes, Italy, reclamation, 320.
Porcelain figures, old Vienna, 425.
Port Dalny, 456.
Portable houses, Cape Colony, demand, 160.
Ports:
  Open, Cuba, 153.
  Venezuela, blockade, 312, 446.
Portugal:
  Blind, new industry, 611.
  Commercial situation, 622.
Portuguese West Africa:
  Railway, British, 161.
  Railway, State, contract, 462.
Postal parcels for Honduras, packing, 152.
Postal Union monument, Berne, design, 310.
Potato-starch machinery, Russia, opening, 610.
Powell, W. F. (minister, Santo Domingo):
  Customs revenue, Dominican Republic, 459.
  Import duties, Dominican Republic, 129.
  Import duties, Santo Domingo, 313.
Presidential message, Cuba, 178.
Prickitt, W. A. (consul, Rheims), exposition, industrial, Rheims, 259.
Primorski region, gold mining, 533.
Principe, trade, 319.

Prussia:
  Income-tax statistics, 278.
  Railways, State, heavier rails, 310.
  Steam power (1902), 426.
Puerto Cortes, imports, 605.
Pump, electric fire, Rouen, 83.

Queensland, tin, 312.
Quinine auction, Batavia, 306, 463, 615.
Quito, machinery, United States, demand, 465.

Rails, tender, Siam, 600.
Railway supplies, Russian, 149.
Railways:
  Africa, East and South, 586.
  Automobile, Europe, 392.
  British, Portuguese West Africa, 161.
  Central, Cuba, completion, 459.
  Construction, Africa, 438.
  Cyprus, 460.
  Electric, Amherstburg-Windsor, 450.
  Extensions, British Columbia, 451.
  Gold Coast, 144.
  India, new, 622.
  Material, Spain, opening, 255.
  Mexico, new, 175.
  Mileage, Russia, 464.
  Ofoten, Norway, 281.
  Professorship, Germany, 612.
  Projects, Peru, 127.
  Safety device, new, 363.
  Service, Paris to Pekin, 97.
  Simplon, 405.
  State, Dutch Guiana, 162.
  State, Portuguese West Africa, contract, 462.
  State, Prussia, heavier rails, 310.
  State, Siberia, expenses, 305.
  State, Siberia, traffic development, 362.
  Transcontinental, Australia, 600.
Rairden, B. S. (consul, Batavia), quinine auction, Batavia, 306, 463, 615.
Ravndal, G. B. (consul, Beirut):
  Arabic typewriters, 244.
  Harbor and railway, Cyprus, 460.
  Railway construction, Africa, 438.
  Machinery, United States, Syria, 243.
Reservoir, Nile, 588.
Revenue bill, Brazil (1903), 522.
Revenue bill, Brazil, 1903 (correction), 619.
Rheims, exposition, industrial, 259.
Rhenish lumber market, 278.
Ridgely, B. H. (consul, Nantes):
  Cod fishermen, United States, opportunity, France, 562.
  Sardine industry, France, 257.
Rio de la Plata, navigation, 211.
Road, wagon, Honduras, new, 202.
Rock-salt mine, Belgium, 316.
Rome, congress, agricultural, 612.
Roosevelt, G. W. (consul, Brussels):
  Canal, Brussels and Charleroi, 315.
  Congress, international dairy, Brussels, 612.
  Rock-salt mine, Belgium, 316.
  Rouen, fire pump, electric, 83.
Rouen-United States steamship communication, 406.
Roumania, cotton textiles, Italian, 472.
Rubber, Ceara, Nicaragua, 525.
Rubber crop, Brazil, 204.
Rubber land, Peru, leases, 465.
Rubber vine, Honduras, 203.
Ruffin, J. N. (consul, Asuncion):
  Copper, silver, and gold, Paraguay, 516.
  Meat products, Paraguay, 445.
  Rio de la Plata, navigation, 211.
Rural guard, Cuba, reorganization, 112.
Russell, W. W. (secretary of legation, Caracas), tariff, Venezuela, increase, 618.
Russia:
  Automobiles, 13.
  Caucasus, highways, 317.
  Caucasus, tea culture, 455.
  Coal industry, 149.
  Commercial navigation department, 308.
  Crop, winter cereals, 432.
  Dalny, 456.
  Dredges, United States, opening, 619.
  Exhibition, historical attire, 429.
  Furniture, United States, inquiry, 317.
  Grain crops, 149.
  Iletzk, mines, salt, 433.
  Iron industry, 149, 430.

Russia—Continued.
  Machinery, potato-starch, opening, 610.
  Merchant marine (1901), 431.
  Nizhni Novgorod, fair, 320.
  Odessa-Naples-New York steamship line, 457.
  Railway supplies, 149.
  Railway mileage, 464.
  Real estate, ownership, 308.
  St. Petersburg, photography exhibition, 457.
  Sugar yield, 455.
  Tariff, new, 607.
  Tiflis, school, commercial, 536.
  Trade and finances (1902), 148.
  Russo-Chinese frontier, custom formalities, 457.

Safety device, railways, new, 363.
Safety pins, Hungary, 618.
St. Etienne, textile industry, 418.
St. Petersburg, photography exhibition, 457.
Sakhalin Island, naphtha springs, 464.
Salmon production, British Columbia, 531.
Salt mines:
  Iletzk, Russia, 433.
  Rock, Belgium, 316.
Salvador:
  Banks, 313.
  Copper, silver, and gold, 516.
Samoa:
  Apia, waterworks, 141.
  Import, cacao, 154.
Sampson, A. J. (minister, Quito):
  Civil-marriage law, Ecuador, 444.
  Machinery, United States, Quito, demand, 465.
San Thomé, trade, 319.
Sand bricks, France, 408.
Sanitary condition, Habana, 188.
Santa Clara, Cuba, sugar crop, 521.
Santiago de Cuba, sugar crop, 197.
Santo Domingo, import duties, 313.
Sardine industry, France, 257.
Scandinavia, steamship line to South Africa, 160.
Schools:
  Commercial, Tiflis, 536.
  Weaving, Glauchau, 261.
Schumann, W. (consul, Mainz):
  Ceramic industry, Germany, 77.
  Lumber trade, foreign, Germany, 159.
  Vineyards, Germany, area, 163.
Scotland:
  Exporters to, advice, 283.
  Iron and steel trades, 395.
  Joint-stock companies, 396.
  North Sea fisheries, 546.
Screens, mosquito, Lourenço Marquez, 463.
Seed trade, Marseilles (1902), 572.
Seeger, E. (consul-general, Rio de Janeiro), automobiles, Brazil, 17.
Selden, J. P. (vice-consul-general, Bangkok):
  Currency changes, Siam, 599.
  Rails, tender, Siam, 600.
Sewell, W. L. (consul, Pernambuco), copper, silver, and gold, Brazil, 499.
Seychelles:
  Coaling station, 311.
  Trade, 168.
Shipbuilding:
  Germany, progress on the Weser, 379.
  Great Britain, depression, 159.
Ships' holds, fire, apparatus for arresting, 570.
Shipyards, Stettin, reconstructed, 613.
Shoemakers' exhibition, Hamburg, 427.
Shoes:
  United States, England, 466.
  United States, Jamaica, 617.
Shotguns, United States, France, 315.
Siam:
  Currency changes, 599.
  Rails, tender, 600.
  Teak wood, 167.
Siberia:
  Butter bounties, 308.
  Copper, 456.
  Mineral lake, 316.
  Platinum, 621.
  Primorski region, gold mining, 533.
  Railway, State, expenses, 305.
  Railway, State, traffic development, 362.
  Vladivostock, wines, foreign duty, 317.
Silk industry, France, 260.

Silkworms:
    Italy, 419.
    Spain, 418.
Silver:
    Argentine Republic, 493.
    Brazil, 494.
    Chile, 501,
    Colombia, 510.
    Ecuador, 512.
    Honduras, 513.
    Nicaragua, 515.
    Paraguay, 516.
    Salvador, 516.
    Uruguay, 520.
Simplon Railway, 405.
Simplon Tunnel, progress, 158.
Sisal, Yucatan fiber, 473.
Skinner, R. P. (consul-general, Marseilles):
    Automobile regulations, France, 33.
    Colonies, French, 434.
    Oil and seed trade, Marseilles (1902), 572.
    Peanuts, United States, France, demand, 611.
    Wool trade, Marseilles, 416.
Slavonia:
    Animal industry, 158.
    Trade, 424.
Sleeper, J. (secretary of legation, Habana), sanitary condition, Habana, 188.
Smith, A. E. (consul, Victoria):
    Automobiles, Canada, 16.
    Salmon production, British Columbia, 531.
Smith, S. (consul, Moscow):
    Grain crops, Russia, 149.
    Iron and coal industries, Russia, 149.
    Merchant marine, Russian (1901), 431.
    Railway mileage, Russia, 464.
    Railway supplies, Russian, 149.
    Real estate, Russia, ownership, 308.
Smythe, W. P. (consul, Hull), North Sea fisheries, 546.
South Africa:
    Bricks, 311.
    Cape Colony, automobiles, 25.
    Cape Colony, houses, portable, demand, 160.
    Commercial agent, Canadian, 315.
South Africa—Continued.
    Johannesburg, engines, traction, demand, 160.
    Steamship line to Scandinavia, 160.
Spain:
    Automobiles, 13.
    Cable to Canary Islands, 157.
    Copyright agreement with United States, 255.
    Mining enterprise, new, 460.
    Railway material, opening, 255.
    Silkworm, 418.
    Sugar production, 575.
Springer, J. A. (vice-consul, Habana), Cuba, open ports, 153.
Squiers, H. G. (minister, Habana):
    Cattle importation, Cuba, 192.
    Citizenship in Cuba, 195.
    Cuba, foreign trade, 113.
    Cuba, Presidential message, 178.
    Cuban customs tariff, 440, 458.
    Engineer titles, Cuba, 194.
    Exhumation and removal of bodies, Cuba, 153.
    Insurance companies, foreign, Cuba, 161.
    Rural guard, Cuba, reorganization, 112.
    Sugar production, Cuba, 111.
Stage-coach line, Honduras, new, 459.
Starch, potato, machinery, Russia, opening, 610.
State railways:
    Dutch Guiana, 162.
    Portuguese West Africa, contract, 462.
    Prussia, heavier rails, 310.
    Siberia, expenses, 305.
    Siberia, traffic development, 362.
Stationery goods, Canada, 121.
Steamers:
    Cable, Germany, new, 461.
    Japan, new, 307.
Steamship communication, Rouen-United States, 406.
Steamship lines:
    Java-China-Japan, 156.
    Odessa-Naples-New York, 457.
    Rotterdam and Montreal, 607.
    Scandinavian-South African, 160.
Steamship service:
    German-South American, new, 151.
    Germany and Brazil, 151.

Steel factory, United States, Flushing, 618.
Steel plant, Monterey, 606.
Steel trade, Scotland, 395.
Stettin, shipyards, reconstructed, 613.
Storer, B. (minister, Madrid), copyright agreement, Spain and United States, 255.
Straits Settlements:
  Automobiles, 22.
  Currency changes, proposed, 598.
Street architecture, Paris, 92.
Strikes:
  Buenos Ayres, 444.
  Coal, France, 92.
  Weavers, Meerane, 262.
Suez, port, commercial movement, 471.
Sugar:
  France and Brussels conference, 382.
  Industry, Formosa, 322.
  National consumption, 108.
  Production, Cuba, 111.
  Production, Europe, 385.
  Production, Europe, estimates, 256.
  Production, Spain, 575.
  Yield, Russia, 455.
Sugar bill, Germany, 542.
Sugar crop:
  Estimates (1901–3), 106.
  Guadeloupe, 616.
  Santa Clara, Cuba, 521.
  Santiago de Cuba, 197.
Sulphate of copper, Greece, opening, 424.
Sulphuric acid on dried fruit, 454.
Superphosphates, United States, demand, 309.
Swalm, A. W. (consul, Montevideo):
  Copper, silver, and gold, Uruguay, 520.
  Cuba, Uruguayan commerce, 520.
Sweden:
  Antisocialistic society, 464.
  Automobiles, 14.
  Industrial combinations, 462.
  Lumber companies, combination, 467.
  Zinc, production by electricity, 462.
Switzerland:
  Automobiles, 15.
  Berne, Postal Union monument, design, 310.
  Brake for trains, automatic outside, 206.
Switzerland—Continued.
  Fish, live, carrying device, 97.
  Railway, Simplon, 405.
  Simplon Tunnel, progress, 158.
  Tariff law, new, 158.
  Tariff, new, vote on, 466.
Syria:
  Dredge, opening, 615.
  Machinery, United States, 243.

Tariff bill, German, 461.
Tariff changes, Australia, 137.
Tariff law, Switzerland, new, 158.
Tariffs:
  Cuban customs, 440, 458.
  Customs, Germany, changes, 147.
  Germany, new, 369.
  Japan, new, 130.
  Russia, new, 607.
  Switzerland, new, vote on, 466.
  Venezuela, increase, 618.
Tax, income, statistics, Prussia, 278.
Taxes, Colombia, reduction, 465.
Tea culture, Caucasus, 455.
Teak wood, Siam, 167.
Telegraphy, wireless, Martinique and Guadeloupe, 604.
Textile industry, St. Etienne, 418.
Textiles, Italian cotton, Roumania, 472.
Thackara, A. M. (consul, Havre):
  Automobile regulations, France, 37.
  Firemen's competition, Havre, 611.
  United States trade, France, 409.
Thieriot, J. H. (consul, Lisbon):
  Blind, new industry, 611.
  Railway, British, Portuguese West Africa, 161.
  Railway, State, contract, Portuguese West Africa, 462.
Tiflis, school, commercial, 536.
Timber:
  Trade, Lourenço Marquez, 439.
  Vulcanized, England, 610.
Tin, Queensland, 312.
Titles, engineer, Cuba, 194.
Togoland, German, development, 242.
Tonkin, trade conditions, 142.
Tonnage dues, Colombia, 162.
Toronto, Niagara Falls power, 606.
Tower, C. (ambassador, Berlin):
  Sugar bill, Germany, 542.
  Venezuelan ports, blockade, 446.

Traction engines, Johannesburg, demand, 160.
Trade-mark regulations, Malta, 104.
Transcontinental railway, Australia, 600.
Trans-Pacific cable, 168.
Treaty of peace, Colombia, 198.
Tsintau,, chamber of commerce, German, 463.
Tunis, almond harvest, 161.
Tunnel, Simplon, progress, 158.
Turkestan, mining industry, 535.
Turkey in Asia:
    Commercial conditions, 245.
    Harput, vehicles, United States, demand, 143.
    Syria, machinery, United States, 243.
Turnei, C. E. (consul-general, Ottawa):
    Cattle, United States, Canada, embargo, 314.
    Mica plant, Ottawa, 314.
    Typewriters, Arabic, 244.

United States:
    Automobiles, Malta, 577.
    Brewery, Ghent, 280.
    Briquette machinery, German, 269.
    Capital, Canada, 115.
    Capital in Canadian bank stock, 212.
    Cattle, Canada, embargo, 314.
    Cod fishermen, opportunity, France, 562.
    Copyright agreement with Spain, 255.
    Dredges, Russia, opening, 619.
    Enterprises, Mexico, 169.
    Exhibits, Paris automobile show, 388.
    Florida vs. Polynesian phosphate, 156.
    Foreign commerce (1902), 323.
    Furniture, inquiry, Russia, 317.
    Goods, Great Britain, delayed orders, 281.
    Hungarian firm, 466.
    Imports from Germany, 100, 543.
    Imports from Manchester, 101, 398.
    Locomotives, England, 393.
    Machinery, Quito, demand, 465.
    Machinery, Syria, 243.
United States—Continued.
    Manufactures, Chemnitz, 263.
    Odessa-Naples-New York steamship line, 457.
    Peanuts, France, demand, 611.
    Popular wares, England, 101.
    Rouen, steamship communication, 406.
    Salable products, Germany, 68.
    Shoes, England, 466.
    Shoes, Jamaica, 617.
    Shotguns and ammunition, France, 315.
    Steel factory, Flushing, 618.
    Superphosphates, demand, 309.
    Trade, France, 409.
    Trade, India, 305.
    Vehicles, Harput, demand, 143.
    Yacht wanted, France, 309.
United States and Great Britain, trade, general review, 296.
United States vs. European trade, Cuba, 153.
Uruguay:
    Copper, silver, and gold, 520.
    Cuban commerce, 520.

Vancouver, Chinese enterprise, 465.
Vehicles, United States, Harput, demand, 143.
Venezuela:
    Commerce, 620.
    Ports, blockade, 312, 446.
    Tariff increase, 618.
    Trade with Germany, 447.
Victoria, automobiles, 25.
Vienna, exposition, apiculture, 609.
Vine, rubber, Honduras, 203.
Vineyards, Germany, area, 163.
Vladivostock, wines, foreign, duty, 317.
Vulcanized timber, England, 610.

Wages, France, 85.
Wagon road, Honduras, new, 202.
Warner, B. H. (consul, Leipzig), briquettes, waterproof, Germany, 159.
Washington, H. L. (consul, Geneva), Simplon Tunnel, progress, 158.
Water, drinking, purifying by electricity, 315.
Water power, France, 402.
Water-supply plant, Java, 155.

Waterworks, Apia, 141.
Weavers' strike, Meerane, 262.
Weaving school, Glauchau, 261.
Well-boring machines, China, opening, 532.
Westacott, R. (vice-consul-general, London), automobiles, Great Britain, 8.
Wheat:
  Australia, scarcity, 316.
  Duty, Mexico, reduction, 314.
  Mexico, duty, 618.
White, A. D. (ambassador, Berlin):
  Customs tariff, Germany, changes, 147.
  Sulphuric acid on dried fruit, 454.
White, H. (secretary of embassy, London), Venezuelan ports, blockade, 312.
Williams, O. F. (consul-general, Singapore), automobiles, Straits Settlements, 22.
Winans, C. S. (consul, Iquique), copper, silver, and gold, Chile, 509.
Wines, foreign, Vladivostock, duty, 317.
Winter, J. F. (consul, Annaberg):
  Glass manufacture, Germany, 310.
  Gold mining, German East Africa, 614.
  Togoland, German, development, 242.
Wireless telegraphy, Martinique and Guadeloupe, 604.
Wires, aërial, France, repairing by automobiles, 390.
Wood import, Hamburg, 279.
Wood, teak, Siam, 167.
Wool production, Australasia, 601.
Wool trade, Marseilles, 416.
World:
  Coal industry, 94.
  Sugar-crop estimates (1902–3), 106.

Yacht, United States, wanted, France, 309.
Yucatan fiber, sisal, 473.
Yukon, machinery, 606.

Zacaton, preparation, Mexico, 442.
Zanzibar, light-houses, 312.

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CONSULAR REPORTS.

COMMERCE, MANUFACTURES, ETC.

VOL. LXXII.

NOS. 272, 273, 274, AND 275.

MAY, JUNE, JULY, AND AUGUST, 1903.

DEPARTMENT OF COMMERCE AND LABOR · UNITED STATES OF AMERICA ·

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1903.

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[FOR TABLE OF CONTENTS, SEE FIRST PAGE.]

DEPARTMENT OF STATE * UNITED STATES OF AMERICA *

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CONTENTS.

		Page.
LIST OF PUBLICATIONS		IX
I.—THE RUSSIAN PETROLEUM TRADE	*Chambers*	1
II.—AMERICAN GOODS IN RUSSIAN POLAND	*De Soto*	27
III.—THE YEAR'S RECORD IN GERMANY	*Mason*	28
IV.—THE POTATO AS A SOURCE OF WEALTH IN GERMANY		32
V.—USE OF ELECTRICITY ON GERMAN VESSELS	*Harris*	43
VI.—LATEST BUNDLING PRESS IN GERMANY		48
VII.—GERMAN EMBROIDERING APPARATUS	*Creevey*	49
VIII.—MANUFACTURE OF QUARTZ GLASS IN GERMANY	*Guenther*	50
IX.—SAND BRICKS IN GERMANY	*McKellip*	51
X.—AGRICULTURAL FAIR AT CÜSTRIN, GERMANY	*Hughes*	51
XI.—USE OF TILES IN GERMAN MEAT SHOPS	*Harris*	52
XII.—GERMAN RAILWAY STATISTICS	*Schumann*	53
XIII.—BREMEN SHIPPING BUSINESS IN 1902	*Diederich*	54
XIV.—INCOMES AND INCOME TAXATION IN PRUSSIA	*Murphy*	55
XV.—STANDARDIZATION IN GREAT BRITAIN	*Halstead*	56
XVI.—THE WOOL-COMBING INDUSTRY OF BRADFORD	*Day*	57
XVII.—TRADE IN DUNDEE IN 1902	*Higgins*	61
XVIII.—WATERWORKS SCHEME IN ENGLAND	*Mahin*	64
XIX.—NEW AMERICAN SHOE MACHINES IN ENGLAND		66
XX.—FINANCES OF BRITISH MUNICIPAL TRADING		66
XXI.—THE SHORTEST TRANS-ATLANTIC STEAMSHIP ROUTE		67
XXII.—FOG SIGNAL IN BELGIUM	*Roosevelt*	68
XXIII.—ANTWERP IVORY MARKET	*Lincoln*	71
XXIV.—STERILIZATION OF MEAT IN BELGIUM	*Roosevelt*	72
XXV.—ALCOHOL FROM THE JERUSALEM ARTICHOKE	*Haynes*	72
XXVI.—INTRODUCTION OF AMERICAN AUTOMOBILES INTO SWITZERLAND	*Washington*	73
XXVII.—SPAIN'S FOREIGN COMMERCE IN 1902	*Bartleman*	77
XXVIII.—OLIVE OIL IN SPAIN	*Birch*	78
XXIX.—SILVER AND PLATED WARE IN SPAIN	*Bartleman*	79
XXX.—HEMATITE MINING IN SPAIN	*Birch*	80
XXXI.—DIRECT SHIPMENTS OF GRAPES FROM SPAIN	*Carleton*	81
XXXII.—THE ITALIAN CITRUS-FRUIT CRISIS	*Heingartner*	82
XXXIII.—COMMERCIAL TRAVELERS IN AUSTRIA	*Hossfeld*	84
XXXIV.—PROPOSED AUSTRO-HUNGARIAN TARIFF	*Chester*	85
XXXV.—HIDE MARKET OF HUNGARY		85

Page.
XXXVI.—Economic Conditions in Greece........ .... Jackson 86
XXXVII.—Sulphate of Copper Bids in Greece..................... Jackson 87
XXXVIII.—Opening for Paper Barrels in Greece................. Jackson 88
XXXIX.—Milk Flour in Sweden...Bergh 88
XL.—American Agencies in Syria...................................Ravndal 90
XLI.—New Railway in Portuguese East Africa.................Hollis 91
XLII.—Port Regulations at Tamatave.................................Hunt 92
XLIII.—Minerals in Australasia.............................. Bray 95
XLIV.—Gold Production of Australasia......................... Bray 96
XLV.—Trade of Tasmania...................... .... Webster 96
XLVI.—Export of Poultry and Other Meat from New South Wales ....Goding 97
XLVII.—Cotton Crop of India in 1902-3..........................Patterson 98
XLVIII.—German Firms in China... .... Hughes 99
XLIX.—The German Colony of Kyao-chau..................... Hughes 101
L.—Sugar Refining in Japan..Bellows 102
LI.—Railways in Japan..Lyon 104
LII.—Tariff at Muroran..Ferguson 105
LIII.—Chinese Exports to the United States.................Goodnow 105
LIV.—Canadian Railways and Canals................................Johnson 107
LV.—Commercial Loyalty in Canada.......................................Hale 108
LVI.—Proposed Lake Champlain-St. Lawrence Canal.......Johnson 108
LVII.—New Industries in Ontario...................................Gunsaulus 109
LVIII.—Trade of Veracruz...Canada 110
LIX.—Commerce of Costa Rica in 1902..........................Caldwell 115
LX.—Commerce of Honduras in 1902....................................Alger 121
LXI.—Mining Enterprises and Limited Companies of Bolivia, Sorsby 122
LXII.—Inspection of Cattle in Argentina..............................Lord 124
LXIII.—Blockade of the Orinoco......................................Russell 125
LXIV.—Trade of Cuba..Squiers 126
LXV.—Trade at Santiago de Cuba..................................Holaday 127
LXVI.—Sawmills and Lumber in Cuba..................................Baehr 128
LXVII.—Cuban Diplomatic and Consular Service................Sleeper 128
LXVIII.—Competition for the Palma International Rifle Match... 129
LXIX.—Notes (Proposed Railways in Siberia—Canadian Railway to the Yukon—Medicinal and Textile Plants in Paraguay—Railway-Car Plant in Mexico—Meat-Canning Factory in Veracruz—Export of Silver Coins from Nicaragua Prohibited—Transit Duties on the Amazon Abolished—Financial Measures Proposed in Haiti—Sanitary Congress at Bradford—Congress for Applied Chemistry at Berlin—Combination of Swedish Glass Factories—American College in

Page.

Strassburg—Automobile Exposition at Brussels—Poultry Exhibition at Rome—Congress of Thalassotherapy in Biarritz—International Exposition at Liege—Swedish Brake for Electric Motors—Opening for Chemicals in Budapest—Extention of the Railway-Zone System in Hungary—Production of Saltpeter from Air in Germany—Exports from the Transvaal—Cotton from German East Africa—Tariff Change in Persia—Foreign Enterprises in Siberia—Customs Service at Dalny—Weaving Machinery for Japan—Australian Wool Shipments—Postage Rates to Canada—Canadian Duty Wanted on Binder Twine—Steel Industry in Ontario—Agriculture in Northwest Canada—New Bridges in British Columbia—Disposal of Sewage in British Columbia—Duty on Prepared Foods in Costa Rica—Import Duties of Colombia—Marine Railway at Nassau—Rouen-American Steamship Service: Correction—Demand for Dried Fruits in France—Iron for Warehouses in Barcelona—Quarzitol: New Brick in Germany—British Coal Product in 1902—Fire-Prevention Congress at London—Duty on Needles in Russia—Free Treatment of the Eyes in Russia—German Request for Bones for Knife Handles—Agricultural Experts for Egypt—Opening for American Machinery in South Africa—Review of the World's Commerce and Commercial Relations—Consular Reports Transmitted to Other Departments).. 131

LXX.—Foreign Reports and Publications (Economic Situation of Finland—Russian Trade with China—Commerce of French Colonies—Machinery Market in South Africa—Export of Gum Arabic from Egypt—Japanese Trade with the Philippines—Camphor Forest Discovered in Formosa)................ 148

REPORTS BY COUNTRIES.

AFRICA: Page.
- Port regulations at Tamatave 92

AFRICA, GERMAN EAST:
- Cotton from 139

AFRICA, PORTUGUESE EAST:
- New railway in 91

AFRICA, SOUTH:
- Exports from the Transvaal 139
- Opening for American machinery in 146

ARGENTINE REPUBLIC:
- Inspection of cattle in 124

AUSTRALASIA:
- Gold production of 96
- Minerals in 95
- Trade of Tasmania 96

AUSTRALIA:
- Export of poultry and other meat from New South Wales 97
- Wool shipments 141

AUSTRIA-HUNGARY:
- Commercial travelers in 84
- Extension of the railway-zone system in Hungary 138
- Hide market of 85
- Opening for chemicals in Budapest 138
- Proposed tariff of 85

BELGIUM:
- Automobile exposition at Brussels 136
- Antwerp ivory market 71
- Fog signal in 68
- International exposition at Liege 137
- Sterilization of meat in 72

BOLIVIA:
- Mining enterprises and limited companies of 122

BRAZIL:
- Transit duties on the Amazon abolished 134

BAHAMA ISLANDS:
- Marine railway at Nassau 144

CANADA:
- Agriculture in northwest 142
- Commercial loyalty in 108
- Disposal of sewage in British Columbia 143
- Duty wanted on binder twine 142
- New bridges in British Columbia 143
- New industries in Ontario 109
- Postage rates to 141
- Proposed Lake Champlain-St. Lawrence canal 108
- Railway to the Yukon 131
- Railways and canals in 107
- Steel industry in Ontario 142

Page.

CHINA:
- Customs service at Dalny, 140
- Exports to the United States from, 105
- German firms in, 99
- The German colony of Kyao-chau, 101

COLOMBIA:
- Import duties of, 144

COSTA RICA:
- Commerce of, in 1902, 115
- Duty on prepared foods in, 143

CUBA:
- Diplomatic and consular service of, 128
- Sawmills and lumber in, 128
- Trade at Santiago de Cuba, 127
- Trade of, 126

EGYPT:
- Agricultural experts for, 146

ENGLAND:
- Competition for the Palma international rifle match, 129
- Fire-prevention congress at London, 145
- New American shoe machines in, 66
- Sanitary congress at Bradford, 134
- The shortest trans-Atlantic steamship route, 67
- The wool-combing industry of Bradford, 57
- Waterworks scheme in, 64

FRANCE:
- Alcohol from the Jerusalem artichoke, 72
- Congress of thalassotherapy in Biarritz, 137
- Demand for dried fruits in, 144
- Rouen-American steamship service: Correction, 144

GERMANY:
- Agricultural fair at Cüstrin, 51
- American college in, 136
- Bremen shipping business in 1902, 54
- Congress for applied chemistry at Berlin, 135
- Embroidering apparatus in, 49
- Incomes and income taxation in Prussia, 55
- Latest bundling press in, 48
- Manufacture of quartz glass in, 50
- Production of saltpeter from air in, 139
- Quarzitol: New brick in, 145
- Railway statistics of, 53
- Request for bones for knife handles in, 146
- Sand bricks in, 51
- The potato as a source of wealth in, 32
- The year's record in, 28
- Use of electricity on vessels of, 43
- Use of tiles in meat shops of, 52

GREAT BRITAIN:
- Coal product in 1902, 145
- Competition for the Palma international rifle match, 129
- Finances of British municipal trading, 66
- Fire-prevention congress at London, 145

GREAT BRITAIN—Continued. Page.
New American shoe machines in.... 66
Sanitary congress at Bradford.... 134
Standardization in.... 56
The shortest trans-Atlantic steamship route.... 67
The wool-combing industry of Bradford.... 57
Trade in Dundee in 1902.... 61
Waterworks scheme in England.... 64
GREECE:
Economic conditions in.... 86
Opening for paper barrels in.... 88
Sulphate of copper bids in.... 87
HAITI:
Financial measures proposed in.... 134
HONDURAS:
Commerce of, in 1902.... 121
INDIA:
Cotton crop of, in 1902–3.... 98
ITALY:
Citrus-fruit crisis in.... 82
Poultry exhibition at Rome.... 137
JAPAN:
Railways in.... 104
Sugar refining in.... 102
Tariff at Muroran.... 105
Weaving machinery for.... 141
MADAGASCAR:
Port regulations of Tamatave.... 92
MEXICO:
Meat-canning factory in Veracruz.... 133
Railway-car plant in.... 132
Trade of Veracruz.... 110
NEW SOUTH WALES:
Export of poultry and other meat from.... 97
NICARAGUA:
Export of silver coins from, prohibited.... 133
PARAGUAY:
Medicinal and textile plants in.... 132
PERSIA:
Tariff change in.... 140
POLAND, RUSSIAN:
American goods in.... 27
PRUSSIA:
Incomes and income taxation in.... 55
RUSSIA:
Duty on needles in.... 145
Free treatment of the eyes in.... 146
Petroleum trade of.... 1
SCOTLAND:
Trade in Dundee in 1902.... 61
SIBERIA:
Foreign enterprises in.... 140
Proposed railways in.... 131

SPAIN: Page.
Direct shipments of grapes from ... 81
Foreign commerce of, in 1902 ... 77
Hematite mining in ... 80
Iron for warehouses in Barcelona ... 144
Olive oil in ... 78
Silver and plated ware in ... 79
SWEDEN:
Brake for electric motors in ... 138
Combination of glass factories in ... 135
Milk flour in ... 88
SWITZERLAND:
Introduction of American automobiles into ... 73
SYRIA:
American agencies in ... 90
TASMANIA:
Trade of ... 96
TRANSVAAL:
Exports from ... 139
UNITED STATES:
Review of the World's Commerce and Commercial Relations ... 146
VENEZUELA:
Blockade of the Orinoco ... 125

Full directions for binding the Consular Reports are given in No. 131, page 663.

Page.

MALTA:
- Bonded stores for tobacco at ... 479
- Import regulations at ... 426
- Lace of ... 427

MANCHURIA:
- Trade of, in 1902 ... 455

MEXICO:
- Cattle market in ... 475
- Customs duties on small shipments to ... 475
- New railroad in Veracruz ... 352
- Proposed patent laws in ... 475

NICARAGUA:
- Agricultural products of ... 347

PALESTINE:
- Railroad through ... 467

PERU:
- Exhibition of alcohol appliances at Lima ... 341
- Mineral and agricultural resources of ... 340

ROUMANIA:
- Kerosene pipe line in ... 478

RUSSIA:
- Exposition of photography at St. Petersburg ... 468

SIAM:
- Windmills in ... 437

SIBERIA:
- Fur industry of ... 464

SPAIN:
- Almond outlook in ... 471
- Olive growing in ... 422
- Pier at Almeria ... 425
- Trade information from ... 424
- Trade notes from Andalusia ... 424

SWITZERLAND:
- New buttonhole machine in ... 470

TRANSVAAL:
- Transit dues on goods for ... 466

TURKEY:
- American pork in ... 479

TURKEY IN ASIA:
- Exposition at Sivas ... 472
- Pier at Smyrna ... 479

URUGUAY:
- Commerce of, for 1902 ... 346
- Destruction of fruit scale in ... 476

VENEZUELA:
- Duty on pine in ... 480
- Tariff changes in ... 476

Full directions for binding the Consular Reports are given in No. 131, page 663.

ANNOUNCEMENT.

On July 1, 1903, the Bureau of Foreign Commerce of the Department of State, which has had charge of the publication and distribution of the CONSULAR REPORTS, was transferred to the Department of Commerce and Labor, in pursuance of provisions in the act of Congress approved February 14, 1903, creating that Department, and consolidated with the Bureau of Statistics, transferred from the Treasury to the new Department. Reports from consular officers on commercial and industrial subjects will hereafter be transmitted through the Department of State to the Department of Commerce and Labor, and the latter will publish and distribute them.

Requests for consular reports should hereafter be made to the Department of Commerce and Labor.

The publications formerly issued by the Bureau of Foreign Commerce will be issued in similar form by the Department of Commerce and Labor. They are as follows:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—REVIEW OF WORLD'S COMMERCE, being a summary of the annual reports contained in Commercial Relations.

III.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

IV.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

V.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

VI.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880–81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885–86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

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Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

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Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1901).—Part I. Gas and Oil Engines in Foreign Countries. Part II. Silver and Plated Ware in Foreign Countries.

Vol. 24 (1902).—Creameries in Foreign Countries.

Vol. 25 (1902).—Stored Goods as Collateral for Loans.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Carpet Manufacture, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, Heating and Cooking Stoves, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Money and Prices, Paper in Foreign Countries, Port Regulations, Refrigerators and Food Preservation; Sericulture, etc.; Silver and Plated Ware; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to $20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to April 1, 1903, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1898, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1875–1877, 1879–1882, 1884–1887, 1895, 1897, and 1899 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—*Countries with fixed currencies.*

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S. gold.	Coins.
Argentine Republic	Gold and silver	Peso	$0.96,5	Gold—argentine ($4.82,4) and ½ argentine; silver—peso and divisions.
Austria-Hungary*	Gold	Crown	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium	Gold and silver	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
British North America (except Newfoundland).	do	Dollar	1.00	
British Honduras	do	do	1.00	
Chile	do	Peso	.36,5	Gold—escudo ($1.25), doubloon ($3.65), and condor ($7.30); silver—peso and divisions.
Costa Rica	do	Colon	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centisimos.
Cuba	Gold and silver	Peso	.92,6	Gold—doubloon ($5.01,7); silver—peso (60 cents).
Denmark	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Ecuador †	do	Sucre	.48,7	Gold—10 sucres ($4.8665); silver—sucre and divisions.
Egypt	do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland	do	Mark	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark	.23,8	Gold—5, 10, and 20 marks.
Great Britain	do	Pound sterling.	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver	Drachma	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	do	Gourde	.96,5	Silver—gourde.
India ‡	Gold	Rupee	.32,4	Gold sovereign ($4.8665); silver—rupee and divisions.
Italy	Gold and silver	Lira	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §	Gold	Yen	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia	do	Dollar	1.00	
Netherlands	Gold and silver	Florin	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Newfoundland	Gold	Dollar	1.01,4	Gold—$2 ($2.02,7).
Peru ‖	do	Sol	.48,7	Gold—libra ($4.8665); silver—sol and divisions.
Portugal	do	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ¶	do	Ruble	.51,5	Gold—imperial ($7.718) and ½ imperial ($3.80); silver—¼, ½, and 1 ruble.
Spain	Gold and silver	Peseta	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay	do	Peso	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela	Gold and silver	Bolivar	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

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* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See CONSULAR REPORTS No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see CONSULAR REPORTS No. 238, p. 359.

§ Gold standard adopted October 1, 1897. (See CONSULAR REPORTS No. 201, p. 259.)

‖ Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896–97, p. 254.

B.—*Countries with fluctuating currencies, 1874–1898.*

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver	Florin	$0.47,6	$0.45,3	$0.40,1	$0.34,5	$0.33,6	$0.42
Bolivia	do	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America	do	Peso	.96,5	.91,8	....	.69,9	.68	.85
China	do	Haikwan tael	1.61	....	....	....	....	....
Colombia	do	Peso	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador	do	do	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt†	Gold	Pound (100 piasters).	....	4.97,4	4.90	4.94,3	....	....
India	Silver	Rupee	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan	Gold	Yen	.99,7	.99,7	....	.99,7	.99,7	.99,7
	Silver		....	....	.87,6	.75,3	.73,4	.91,7
Mexico	do	Dollar	1.04,75	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡	Gold and Silver.	Florin	.40,5	.38,5	....	....	....	....
Peru	Silver	Sol	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia	do	Ruble	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1896.	1898.
Austria-Hungary*.	Silver	Florin	$0.38,1	$0.34,1	....	....	....	....
Bolivia	do	Boliviano	.77,1	.69,1	$0.61,3	$0.51,6	$0.49,1	$0.42,4
Central America	do	Peso	.77,1	.69,1	.61,3	.51,6	.49,1	.41,4
Colombia	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Ecuador	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
India	do	Rupee	.36,6	.32,8	.29,2	.24,5	.23,3	.20,1
Japan§	do	Yen	.83,1	.74,5	.66,1	.55,6	.52,9	....
Mexico	do	Dollar	.83,7	.75	.66,6	.56	.53,3	.46
Peru	do	Sol	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Russia§	do	Ruble	.61,7	.55,3	.49,1	.41,3	.39,3	....
Tripoli	do	Mahbub of 20 piasters.	.69,5	.62.3	.55,3	.46,5	.44,3	....

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* See footnote, page xiii.

† The Egyptian pound became fixed in value at $4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

§ See footnote, table of fixed currencies.

C.—*Quarterly valuations of fluctuating currencies.*

Countries.	Monetary unit.	1900.				1901.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.	$0.42,7	$0.43,6	$0.43,8	$0.45,1	$0.46,8	$0.45,1	$0.43,6	$0.42,8
Central America.	Silver peso	.42,7	.43,6	.43,8	.45,1	.46,5	.45,1	.43,6	.42,8
China	Amoy tael	.69,1	.70,5	.70,9	.72,9	.75,7	.72,9	.70,5	.69,1
	Canton tael	.68,9	.70,3	.70,7	.72,7	.75,5	.72,7	.70,3	.68,9
	Chefoo tael	.66,1	.67,4	.67,8	.69,7	.72,4	.69,7	.67,4	.66,1
	Chinkiang tael	.67,5	.68,8	.69,3	.71,2	.74	.71,2	.68,8	.67,5
	Fuchau tael	.64	.65,2	.65,6	.67,4	.70,1	.67,5	.65,2	.64
	Haikwan tael	.70,3	.71,7	.72,1	.74,2	.77,1	.74,2	.71,7	.70,4
	Hankau tael	.64,7	.65,9	.66,3	.68,2	.70,9	.68,2	.65,9	.64,7
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.66,5	.67,7	.68,2	.70,1	.72,8	.70,1	.67,8	.66,5
	Niuchwang tael	.64,8	.66,1	.66,5	.68,4	.71	.68,4	.66,1	.64,8
	Shanghai tael	.63,1	.64,4	.64,8	.66,6	.69,2	.66,6	.64,4	.63,2
	Swatow tael	.63,9	.65,1	.65,5	.67,4	.70	.67,4	.65,1	.63,9
	Takao tael	.69,6	.70,9	.71,4	.73,4	.76,2	.73,4	.70,9	.69,6
	Tientsin tael	.67	.68,3	.68,7	.70,7	.73,4	.70,7	.68,3	.67
Colombia	Silver peso	.42,7	.43,6	.43,8	.45,1	.46,8	.45,1	.43,6	.42,8
Ecuador †	do								
India	Silver rupee‡	.20,3	.20,7	.20,8					
Mexico	Silver dollar	.46,4	.47,3	.47,6	.49	.50,9	.49	.49	.46,4
Persia	Silver kran	.07,9	.08	.08,1	.08,3	.08,6	.08,3	.08,3	.07,9
Peru †	Silver sol	.42,7	.43,6	.43,8	.48,7				

Countries.	Monetary unit.	1902.				1903.	
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.
Bolivia	Silver boliviano.	$0.41,3	$0.40,3	$0.38,2	$0.38,4	$0.36,1	$0.35,2
Central America	Silver peso	.41,3	.40,3	.38,2	.38,4	.36,1	.35.2
China	Amoy tael	.66,9	.65,1	.61,8	.62	.58,4	.57
	Canton tael	.66,7	.64,9	.61,7	.61,9	.58,2	.56,8
	Chefoo tael	.63,9	.62,3	.59,1	.59,3	.55,8	.54,5
	Chinkiang tael	.65,3	.63,6	.60,4	.60,6	.57	.55,7
	Fuchau tael	.61,8	.60,2	.57,2	.57,4	.54	.52,7
	Haikwan tael	.68	.66,3	.62,9	.63,1	.59,4	.58
	Hankau tael	.62,6	.60,9	.57,9	.58	.54,6	.53,3
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.64,3	.62,6	.59,5	.59,6	.56,1	.54.8
	Niuchwang tael.	.62,7	.61,1	.58	.58,2	.53,3	.53.4
	Shanghai tael	.61,1	.59,5	.56,5	.56,7	.53,9	.52
	Swatow tael	.61,8	.60,2	.57,1	.57,3	.58,8	.52,6
	Takao tael	.67,3	.65,5	.62,2	.62,4	.56,6	.57,3
	Tientsin tael	.64,8	.63,1	.59,9	.60,1	.60,1	.55,2
Colombia	Silver peso	.41,3	.40,3	.38,2	.38,4	.36,1	.35,2
Mexico	Silver dollar	.44,9	.43,7	.41,5	.41,7	.39,2	.38,3
Persia	Silver kran	.07,6	.07,4	.07	.07,1	.06,6	.06,5

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* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† See footnote, table of fixed currencies.

‡ The sovereign is the standard coin of India, but the rupee is the money of account. See also table of fixed currencies.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal	4.422 gallons.
Ardeb	Egypt	7.6907 bushels.
Are	Metric	0.02471 acre.
Arobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1.12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	11.4 gallons.
Do	Spain (raisins)	100 pounds.
Batman or tabriz	Persia	6.49 pounds.
Berkovets	Russia	361.12 pounds.
Bongkal	India	832 grains.
Bouw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	529 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1.333⅓ (1⅓) pounds.
Do*	Japan	1.31 pounds.
Do	Java, Siam, and Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110.24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.46 pounds.
Chetvert	Russia	5.7748 bushels.
Chih	China	14 inches.

*More frequently called "kin." Among merchants in the treaty ports it equals 1.33⅓ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan	Sarawak	3,098 pounds.
Do	Siam (Koyan)	2,667 pounds.
Cuadra	Argentine Republic	4.2 acres.
Do	Paraguay	78.9 yards.
Do	Paraguay (square)	8.077 square feet.
Do	Uruguay	Nearly 2 acres.
Cubic meter	Metric	35.3 cubic feet.
Cwt. (hundredweight)	British	112 pounds.
Dessiatine	Russia	2.6997 acres.
Do	Spain	1.599 bushels.
Drachme	Greece	Half ounce.
Egyptian weights and measures	(*See* CONSULAR REPORTS NO. 144.)	
Fanega (dry)	Central America	1.5745 bushels.
Do	Chile	2.575 bushels.
Do	Cuba	1.599 bushels.
Do	Mexico	1.54728 bushels.
Do	Morocco	Strike fanega, 70 pounds; full fanega, 118 pounds.
Do	Uruguay (double)	7.776 bushels.
Do	Uruguay (single)	3.888 bushels.
Do	Venezuela	1.599 bushels.
Fanega (liquid)	Spain	16 gallons.
Feddan	Egypt	1.03 acres.
Frail (raisins)	Spain	50 pounds.
Frasco	Argentine Republic	2.5096 quarts.
Do	Mexico	2.5 quarts.
Frasila	Zanzibar	35 pounds.
Fuder	Luxemburg	264.17 gallons.
Funt	Russia	0.9028 pound.
Garnice	Russian Poland	0.88 gallon.
Gram	Metric	15.432 grains.
Hectare	do	2.471 acres.
Hectoliter:		
Dry	do	2.838 bushels.
Liquid	do	26.417 gallons.
Joch	Austria-Hungary	1.422 acres.
Ken	Japan	6 feet.
Kilogram (kilo)	Metric	2.2046 pounds.
Kilometer	do	0.621376 mile.
Klafter	Russia	216 cubic feet.
Koku	Japan	4.9629 bushels.
Korree	Russia	3.5 bushels.
Kwan	Japan	8.28 pounds.
Last	Belgium and Holland	85.134 bushels.
Do	England (dry malt)	82.52 bushels.
Do	Germany	2 metric tons (4,480 pounds).
Do	Prussia	112.29 bushels.
Do	Russian Poland	11⅓ bushels.
Do	Spain (salt)	4,760 pounds.
League (land)	Paraguay	4,633 acres.
Li	China	2,115 feet.
Libra (pound)	Argentine Republic	1.0127 pounds.
Do	Central America	1.043 pounds.
Do	Chile	1.014 pounds.
Do	Cuba	1.0161 pounds.
Do	Mexico	1.01465 pounds.
Do	Peru	1.0143 pounds.
Do	Portugal	1.011 pounds.
Do	Spain	1.0144 pounds.
Do	Uruguay	1.0143 pounds.
Do	Venezuela	1.0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter	Metric	1.0567 quarts.
Livre (pound)	Greece	1.1 pounds.
Do	Guiana	1.0791 pounds.
Load	England (timber)	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 superficial feet.
Manzana	Costa Rica	1¾ acres.
Do	Nicaragua and Salvador	1.727 acres.
Marc	Bolivia	0.507 pound.
Maund	India	82$\frac{2}{7}$ pounds.
Meter	Metric	39.37 inches.
Mil	Denmark	4.68 miles.
Do	Denmark (geographical)	4.61 miles.
Milla	Nicaragua and Honduras	1.1493 miles.
Morgen	Prussia	0.63 acre.
Oke	Egypt	2.7225 pounds.
Do	Greece	2.84 pounds.
Do	Hungary	3.0817 pounds.
Do	Turkey	2.82838 pounds.
Do	Hungary and Wallachia	2.5 pints.
Pic	Egypt	21¼ inches.
Picul	Borneo and Celebes	135.64 pounds.
Do	China, Japan, and Sumatra	133⅓ pounds.
Do	Java	135.1 pounds.
Do	Philippine Islands	137.9 pounds.
Pie	Argentine Republic	0.9478 foot.
Do	Spain	0.91407 foot.
Pik	Turkey	27.9 inches.
Pood	Russia	36.112 pounds.
Pund (pound)	Denmark and Sweden	1.102 pounds.
Quarter	Great Britain	8.252 bushels.
Do	London (coal)	36 bushels.
Quintal	Argentine Republic	101.42 pounds.
Do	Brazil	130.06 pounds.
Do	Castile,* Chile, Mexico, and Peru	101.41 pounds.
Do	Greece	123.2 pounds.
Do	Newfoundland (fish)	112 pounds.
Do	Paraguay	100 pounds.
Do	Syria	125 pounds.
Do	Metric	220.46 pounds.
Rottle	Palestine	6 pounds.
Do	Syria	5¾ pounds.
Sagene	Russia	7 feet.
Salm	Malta	490 pounds.
Se	Japan	0.02451 acres.
Seer	India	1 pound 13 ounces.
Shaku	Japan	11.9305 inches.
Sho	do	1.6 quarts.
Standard (St. Petersburg)	Lumber measure	165 cubic feet.
Stone	British	14 pounds.
Suerte	Uruguay	2,700 cuadras (see cuadra).
Sun	Japan	1.193 inches.
Tael	Cochin China	590.75 grains (troy).
Tan	Japan	0.25 acre.
To	do	2 pecks.
Ton	Space measure	40 cubic feet.
Tonde (cereals)	Denmark	3.94783 bushels.
Tondeland	do	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia, the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo	Japan	6 feet square.
Tsun	China	1.41 inches.
Tunna	Sweden	4.5 bushels.
Tunnland	Sweden	1.22 acres.
Vara	Argentine Republic	34.1208 inches.
Do	Central America	32.87 inches.
Do	Chile and Peru	33.367 inches.
Do	Cuba	33.384 inches.
Do	Curaçao	33.375 inches.
Do	Mexico	33 inches.
Do	Paraguay	34 inches.
Do	Spain	0.914117 yard.
Do	Venezuela	33.384 inches.
Vedro	Russia	2.707 gallons.
Vergees	Isle of Jersey	71.1 square rods.
Verst	Russia	0.663 mile.
Vlocka	Russian Poland	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6418 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.
Decameter (10 meters) equals 393.7 inches.
Hectometer (100 meters) equals 328 feet 1 inch.
Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).
Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.
Are (100 square meters) equals 119.6 square yards.
Hectare (10,000 square meters) equals 2.471 acres.

ANNOUNCEMENT.

On July 1, 1903, the Bureau of Foreign Commerce of the Department of State, which has had charge of the publication and distribution of the CONSULAR REPORTS, will be transferred to the Department of Commerce and Labor, in pursuance of provisions in the act of Congress approved February 14, 1903, creating that Department, and will be consolidated with the Bureau of Statistics, transferred from the Treasury to the new Department. Reports from consular officers on commercial and industrial subjects will hereafter be transmitted through the Department of State to the Department of Commerce and Labor, and the latter will publish and distribute them.

A new bureau, to be known as the Bureau of Trade Relations, will, under authority of section 11 of the act of February 14, 1903, be organized in the Department of State on the 1st of July, to formulate, for the instruction of consular officers, the requests of the Secretary of Commerce and Labor; to prepare from the reports of consular officers for transmission to the Secretary of Commerce and Labor such information as pertains to the work of the Department of Commerce and Labor; to transmit consular reports on special subjects, other than commercial, to various branches of the Government service; and to compile information for the use of the Department of State in the consideration of questions arising in the conduct of official relations with foreign governments.

Requests for consular reports should hereafter be made to the Department of Commerce and Labor.

cottons; also a large proportion of the canned goods, hardware, furniture, and perfumery imported.

It is practically certain that a direct line of steamers between New York and the west coast of Africa, touching en route at the Canary Islands, would pay. Details are given in CONSULAR REPORTS No. 264 (September, 1902). It has since been pointed out that such a line could have a port of call in Morocco. Mogador, the principal port on that coast, is only thirty hours from these islands. Morocco being a new and developing field, it would be easier to gain and hold a market there than in places where competition is already severe. Without direct communication, commerce can not be successfully pushed, and, as long as we have to depend upon foreigners to do the carrying of our exports to this part of the world, our trade will remain of comparatively small importance.

British and German firms have travelers here throughout the year. If American houses were to send representatives, the latter could advise when and how to ship; they could guard against delays in the delivery and could often insure the collection of drafts and promote our trade generally. During my stay here I have not seen a single American representative. Our goods get into this market by luck rather than by management.

Coal.—Teneriffe is chiefly used by passing steamers as a port of call for bunker purposes, and over 100 steamers a month put in with this object. Last year the business was not so good, showing a decrease of about 25,000 tons of coal. The difference is accounted for by the general depression of trade.

Petroleum.—All the petroleum imported at Teneriffe during 1902 came from the United States, some direct and the balance transshipped from Grand Canary in coasting vessels.

Lumber.—The United States sends nearly all the pitch pine used in the Canary Islands; Canada sends spruce, and Norway shooks for packing fruits. Of ten vessels bringing lumber here from the United States in 1902, only one was American.

Tobacco.—All leaf tobacco coming to the Canary Islands is of American origin, and the annual value is about $100,000; it is imported via Liverpool and Hamburg. Manufactured tobacco also comes from the United States, except cigars, which are imported from Habana, and cigarettes, which come from Habana, England, and Egypt.

EXPORTS.

The exports declared for the United States and Porto Rico for 1902 show a decrease, the falling off being in onions ($14,000) and potatoes ($8,000). This is due to improved crops in our country in that year. The principal articles of export from these islands are potatoes, tomatoes, and bananas; England provides the market for early fruits and vegetables. I annex a statement of exports declared for the United States, Porto Rico, and the Philippine Islands; also a statement showing the number of packages and value of fruit exported to England. To ascertain the total quantity exported from these islands, 10 per cent should be added to the above, this being about the proportion sent to other countries.

Almonds, wines, and pumice stone are also exported, but the trade is insignificant.

Drawn work, linen.—Of late this has developed into an important local industry, and the product is exported to all parts of the world. English and German houses have special representatives resident here, and it is estimated that 5,000 women are employed and that last year articles to the value of $250,000 were exported.

Sugar.—The cultivation and refining of sugar has become one of the principal industries in the islands. A high duty—viz, 70 pesetas on 100 kilograms ($10.50 on 220 pounds)—is imposed on imported sugar. It sells for from 104 to 120 pesetas ($15.60 to $18.00) per 100 kilograms, according to grade.

EMIGRATION.

In former years the emigration to Porto Rico and Cuba amounted to from 5,000 to 6,000 per year. This has recently fallen off, and during 1902 between 1,500 and 2,000 embarked.

CUSTOMS DUTIES.

Only a few articles pay duty in these islands, namely, sugar, liquors, spirits, tea, coffee, spices, and—a very low rate—tobacco.

IMPROVEMENTS.

The Belgian Electric Tramway Company has obtained a concession to extend its line towards Orotava as far as Tacaronte—6 miles. Work will be started immediately, and it is expected that the line will be in operation by the end of this year.

Work on the mole and breakwater is steadily advancing.

The harbor works at La Palma are making rapid progress, and it is confidently expected that they will be completed within three years. A coaling station will then no doubt be established, and as La Palma is more in a direct line between ports of Europe and of South Africa, Australia, and South and Central America than any other point of the Canary Islands, it will no doubt get a share of the business which now goes to Teneriffe and Grand Canary.

POST-OFFICE.

There being no money-order system in these islands, all money sent through the post is inclosed in envelopes and the value declared on the outside; the post-offices issue receipts and become responsible for safe delivery.

A parcels post was established in December between the Canary Islands, Spain, and Morocco. The public is availing itself of the system, the number of packages sent increasing every month.

TRANSPORTATION AND SHIPPING.

The following lines of steamships call at the Canary Islands:

British and African Steamship Company.
Forwood Bros. & Co.
Aberdeen Line.
Shaw, Savill & Albion Company.
La Veloce Navigacion Italiano.
Chargeurs Réunis.
Cie. Belge de Congo.
Kosmos Steamship Company.
Cia. Trasatlantica.
Societa Nav. e Industrial.
African Steamship Company.
Union Castle Mail Steamship Company.
George Thompson & Co.
New Zealand Steamship Company.
Transports Maritimes.
Messageries Maritimes.
Hamburg-South American Steamship Company.
Woermann Linie.
Folch y Cia.
Pinillos & Co.

The quickest way of shipping goods from the United States is by the Spanish Transatlantic Company, which has a steamer leaving New York on the 1st of every month for Cadiz, where goods are transshipped to another steamer of the same line, which arrives at Teneriffe the 18th of every month. Another way is by the White Star Line to Liverpool and thence by the African Steamship Company, the latter line having weekly sailings to the Canary Islands. Both of these lines issue through bills of lading to any port in the islands.

COST OF LIVING.

Nearly all the necessities of life cost more here than in Europe, and almost double as much as in the United States. There is an octroi tax on all eatables, as well as on fuel and lights.

Land that might be used for raising wheat, corn, etc., is given over to the cultivation of fruit; there is practically no grazing land whatever.

Farms with water, suitable for fruit plantations, bring £1,000 ($4,866) per acre. Bananas, as picked, are sold for about 3s. (73 cents) per bunch; when packed in crates ready for shipment and brought to the wharf, from 4s. to 5s. (97 cents to $1.21).

The number of steamers calling is so large that there is a great demand for local produce; every year, too, there is an influx of several thousand visitors, many of whom are seeking health—these islands being considered an unrivaled resort, especially for sufferers from tuberculosis.

The following prices now rule:

Article.	Price.	
	*Pesetas.**	
Meat, per kilogram (2.2 pounds)	2.00 to 3.00	$0.30 to $0.45
Coffee (not roasted), per pound	1.60 to 2.00	.24 to .30
Butter, do	2.50 to 3.00	.375 to .45
Sugar, do	.60 to .85	.0875 to .13
Bread, do	.25 to .35	.04 to .06
Milk, goats', per quart	.70	.105
Eggs, per dozen	1.50 to 2.50	.225 to .375
Coal, per ton	60.00	9.00

*The peseta is figured at 15 cents, which is about its present value.

Fruit and vegetables are costly in proportion.

Manufactured articles are likewise expensive, as the selling price has to include freight, middlemen's profits, etc.

House rent is very high. There is a constant demand for new houses in Santa Cruz, and last year more than 150 were completed.

TRADE OF GRAND CANARY.

Consular Agent Peter Swanston says:

Paraffin oil was brought here from the United States last year to the value of $73,000, but the greater part was reshipped to the west coast of Africa.

Lumber to the value of $19,485 was imported; and general goods, to the approximate value of $150,000. The latter consist principally of tobacco (Virginia), cooking stoves, mills for stripping maize, lard in buckets, Florida water, cotton goods, and some tinned provisions.

The total exports declared from Grand Canary to the United States from January 1 to December 31, 1902, were:

Cochineal	$6,129.38
Drawn work, linen	5,293.04
Total	11,422.42

To Porto Rico, they were:

Chick-pease	$16,949.78
Potatoes	3,579.63
Onions	9,427.08
Specie	662.85
Total	30,619.34

Of the above, the cochineal and the drawn work, linen, all go to New York. The demand for the latter has greatly increased in the United States, and work to the value of $5,292 was shipped in 1902, as against $736 in 1901.

In a small market such as this, where the consumers are mostly of the laboring classes and the more wealthy are conservative and economical in their way of living, there is small opportunity for pushing the sale of anything that is not one of the primary necessities of life.

Although the wealth of the island is rapidly increasing, owing to the large export of bananas, tomatoes, and potatoes to London and Liverpool and a considerable trade in shipping potatoes to South Africa, the requirements of the bulk of the population remain few and simple.

SOLOMON BERLINER,
Consul.

TENERIFFE, *May 20, 1903.*

Imports at Teneriffe in 1902.

Article.	Great Britain.	Germany.	France.	Italy.	Spain.	United States, Porto Rico, and Cuba.	Other countries.
Alcohol ....gallons...	1,420	4,415	300	70	2,100	1,200	300
Bacon ....tons...	3	3	....	....	5	....	....
Beans ....do.....	62	93	210	....	620	....	763
Beds, iron........do.....	5	4	1	....	14	....	....
Beer........liters*...	110,612	170,452	....	....	4,430	6,000	....
Birdseed........tons...	....	....	2	....	9	....	40
Biscuits ....do.....	120	22	....	2	2	....	....
Brandy........liters...	175	....	1,420	....	392	....	....
Brass........tons...	31	21	2	....	1	....	....
Brushes ....do.....	....	1	2	....	½	....	....
Butter........do.....	52	12	1	1	5	....	....
Buttons ....do.....	2	½	½	½	....	....	....
Caldrons ....do.....	34	1	....	....	4	....	....
Candles ....do.....	220	....	1	....	10	....	....
Canned fruits........do.....	44	....	1	....	4	....	....
Canned goods........do.....	31	....	3	....	6	....	....
Carpets ....do.....	4	1	5	....	15	....	....
Cement ....do.....	210	62	581	25	125	....	3,200
Cigarettes........do.....	4½	½	....	....	....	5	....
Cheese ....do.....	1	1	2	....	....	....	3
Chemical manures.....do.....	1,420	210	165	225	140	....	250
Chick-pease ....do.....	35	....	29	....	62	....	1,020
Coaches ....do.....	1	....	1	....	....	....	2
Coal........do.....	212,000	....	....	....	....	....	....
Cocoa ....do.....	1½	3½	1½	....	....	....	....
Codfish........do.....	2	4	....	....	....	....	12
Coffee ....do.....	15	35	....	....	....	....	82
Corn ....do.....	128	5	....	....	10	....	3,156
Cottons........do.....	115	5	2	....	42	....	10
Dates ....do.....	15	....	1	1	5	....	12
Drugs ....do.....	23½	15	5	....	18	....	....
Earthenware........do.....	19	25	82	....	122	....	15
Eggs ....do.....	....	....	....	....	1	....	82
Fish, dried........do.....	9	25	....	....	168	....	....
Flour........do.....	1,864	....	425	....	....	....	....
Fruit, dried........do.....	121	1	....	....	24	....	....
Furniture ....do.	12	30	2	....	41	2	....
Gin........liters*...	3	3	....	....	....	....	4
Glass........tons...	25	20	2	....	24	....	10
Glassware........do.....	2	5	1	....	2	....	....
Guano........do.....	1,010	85	....	....	82	....	100
Ham ....do.....	18	4	....	1	2	1	....
Hardware........do.....	62	32	18	....	12	3	14
Hats ....do.....	1	....	2	12	1	....	....
Hay ....do.....	51	2	10	....	12	....	80

*1 liter=1.05 quarts.

Imports at Teneriffe in 1902—Continued.

Article.	Great Britain.	Germany.	France.	Italy.	Spain.	United States, Porto Rico, and Cuba.	Other countries.
Ink……liters*	3	2	1		1		
Iron, manufactured……do	152	62	12		24		
Jams……do	15	1	1	1	12	2	1
Knives……do		1					
Lamps……do	1	½	1		1		1
Lard……do	140	12					
Lead pipes……do	1				3		
Leather……do	11	5	41	10	64		25
Lentils……do			12				3
Machinery……do	35	15	3		12		15
Maize……do	320		162		242		4,725
Marble work……do		1		20	9		
Matches……do	14	13	7	21			15
Meat, canned……do	1	1			2		2
Milk, condensed……do	5						
Nails……do	24	47	15		8		
Olives……do					45		
Oil……do	27	1	42	12	625		
Paints……do	33	3	1		3		
Paper……do	120	125	12	3	45		10
Perfumery……do	1	1	6		1	3	
Petroleum……gallons						112,250	
Porcelain……tons	7	21	25		30		5
Pork……do	35				4		
Preserves……do	30		2		21	1	
Provisions……do	82	1	4		21		6
Ribbons……do		1	1	1	1		
Rice……do	182	62		12	140		
Rope……do	8	4	7	7	6		15
Rum……liters	1				2	84	
Sacks, empty……tons	24	15	5		12		8
Salt……do	1		1		5		
Salt meat……do	8	3		15		7	50
Sardines……do			2		160		
Sausages……do			2	5	15		
Sawdust……do	262	528		140			965
Scales……do	1	4	1		2		2
Seeds……do	25	1	1		25	1	
Shawls……do		2		2			
Shoes……do	1				34		
Soap……do	362	1	3		12		
Spices……do	1		1		4		
Starch……do	7	32	18		5		3
Steel……do	1	3			2		
Stockings……do	2	2	1		4		
Straw……do	428	42			58		
Sugar……do	1	1					
Sulphur……do	1	1		75	240		
Tea……do	2	1					
Textiles……do	185		30	22	148		1
Thread……do	5	1	1		3		
Tiles……do			1,836	28			
Timber……do						1,855	320
Tinware……do	5						
Tobacco……do	172	125				2	2
Manufactured……do	4	1				5	
Toys……do	1	3	1	1	2		

* 1 liter=1.05 quarts.

Imports at Teneriffe in 1902—Continued.

Article.	Great Britain.	Germany.	France.	Italy.	Spain.	United States, Porto Rico, and Cuba.	Other countries.
Turf .... tons...	120						50
Varnishes .... do......	3	2					
Vinegar .... do......	9	10			2		
Watches .... do......	2	1	1	1			
Wheat .... do......	225		227				423
Whisky .... liters...	26						2
Wickerwork .... tons...	1	1					10
Wine .... liters*...	4,528	1,200	25,615	53,220	435,225		7,200
Wire .... tons...	2	1			1		
Woolens .... do......	8	5	3		2		
Wood .... do......	320	250	1		2	3,728	4,630
Zinc .... do......	2						
Horses .... number...					27		20
Oxen .... do......					12		210
Sheep .... do......							100
Poultry .... do......							75,000

*1 liter=1.05 quarts.

Export of fruit from the Canary Islands in 1902.

Article.	Quantity.	Value.	
		*Pesetas.**	
Bananas .... crates...	1,656,876	9,941,256	$1,421,599.60
Tomatoes .... boxes...	432,388	3,891,492	556,483.35
Potatoes .... do......	234,966	1,174,830	168,006.90

*The average exchange value of a peseta in 1902 was 14.3 cents.

Exports declared from Teneriffe to the United States, Porto Rico, and the Philippine Islands in 1902.

To the United States:	
Almonds	$328.76
Cochineal	9,959.12
Drawn work, linen	3,149.79
Onion seed	2,572.98
Total	17,010.65
To Porto Rico:	
Chick-pease	729.35
Cumin seed	71.90
Onions	3,330.20
Potatoes	2,018.38
Total	6,149.83
To Philippine Islands:	
Drawn work, linen	247.20

Premium on gold for the years 1901 and 1902.

Month.	Average. 1901.	Average. 1902.
	Per ct.	*Per ct.*
January	36	34.05
February	36.95	36.05
March	35	35.3
April	36.05	36.6
May	37.2	37.3
June	38.95	36.85
July	38.1	36.9
August	40.45	36.85
September	41.6	34.85
October	42.35	32.25
November	42.15	34.5
December	33.25	34.95
Average for the year	38.15	35.53

NOTE.—The highest point reached was October 10, 1901—45.1 per cent—and the lowest on December 10, 1901—30.5 per cent—showing a fluctuation of 14.6 per cent.

Shipping at Santa Cruz de Teneriffe in 1902.

Nationality.	Sailing vessels. Number.	Sailing vessels. Tonnage.	Steamers. Number.	Steamers. Tonnage.	War vessels. Number.	War vessels. Guns.	Total. Number.	Total. Tonnage.
		Tons.		*Tons.*				*Tons.*
Belgian			34	74,010			34	74,010
Colombian					1	12	1	
Danish			6	3,946			6	3,946
French			179	269,977	3	28	182	269,977
German			195	413,004			195	413,004
British	5	2,391	737	1,489,130			742	1,491,521
Dutch			4	3,926	3	25	7	3,926
Italian	2	1,783	58	126,939			60	128,722
Portuguese	1	192			1	5	2	192
Russian			13	8,713	1	3	14	8,713
Spanish	12	3,725	462	372,784	2	9	476	376,509
Swedish and Norwegian	4	1,495	15	11,602			19	13,097
Uruguayan	2	926					2	926
American			1	184	1	14	2	6,298
Total	26	10,512	1,704	2,774,215	12	96	1,742	2,790,841

NOTE.—The total number of vessels entered during the year 1902 was 2,851, including coasting boats of all classes.

Return of shipping at the port of La Palma, Grand Canary, during 1902.

Nationality.	Sailing.		Steam.	
	Vessels.	Tons.	Vessels.	Tons.
American	5	3,689		
British	6	2,328	1,338	3,542,500
Austrian	1	561	13	21,482
Argentine			1	2,520
Belgian			4	5,472
Dutch			21	37,884
Danish	2	935	18	26,461
French			98	286,775
German			227	473,324
Italian	2	956	70	145,864
Russian	1	478	13	20,419
Spanish	819	263,589	1,271	581,377
Swedish and Norwegian	6	2,184	27	58,319
Uruguayan	1	504		
Total	843	275,224	3,101	5,202,397

OPENINGS FOR TRADE IN ASTURIAS, SPAIN.

RAILWAYS.

The Compañia de Ferro-carriles de San Martin, Lieres Gijon-Musel, of Gijon, will receive proposals for the supply of materials for laying lines, and also for the construction of two hydraulic loading tips at the terminus at the port of Musel.

The Sindicato Asturiano del Puerto del Musel, of Gijon, will receive proposals for the construction of electric cranes and of three electric loading tips, the power to be obtained from the works of the Sociedad General de Productos Quimicos de Aboño, now in course of construction about 2 miles from the harbor.

The Compañia de Ferro-carriles Vasco-Asturiano, of Oviedo, is having a survey made between Lugones and Gijon, in order to construct a line to connect the latter city with the line from Ujo to the port of San Esteban de Pravia.

ELECTRIC TRAMWAY.

The Compañia de Tranvias de Gijon is preparing to change its horse traction to electric, and is open to receive offers of electric cars.

ELECTRIC-LIGHT STATION.

The Compañia Popular Ovetense de Gas y Electricidad, of Oviedo, has a project in hand to utilize a waterfall at Cangas de Onis, to generate power for the electric-light station at Oviedo.

ARTHUR LOVELACE,
Acting Consular Agent.

GIJON, *May 9, 1903.*

UNITED STATES TRADE IN BRITISH INDIA.

I give below a statement of the imports and exports of British India (exclusive of treasure) and the trade with the principal countries, showing the comparatively small amount imported from the United States during the past two years:

Country.	Imports.		Exports.	
	1900–1901.	1901–2.	1900–1901.	1901–2.
Total	$244,089,232	$260,706,614	$333,313,594	$387,856,201
From and to—				
United Kingdom	155,763,106	168,180,044	100,320,802	97,185,709
Austria-Hungary	10,037,892	12,607,097	8,663,796	7,603,462
Belgium	7,777,497	9,642,527	11,353,416	15,007,527
France	3,546,937	4,405,613	19,142,746	28,411,392
Germany	8,329,731	9,719,251	29,459,976	32,520,588
Italy	2,644,573	3,119,535	9,801,497	9,339,632
Russia *	19,086,182	10,195,729	778,744	672,771
United States	3,999,854	3,772,450	23,094,854	26,780,486

* The imports from Russia are principally kerosene oil.

More than one-fourth of the imports from the United States is kerosene oil.

From the above it will be seen that the United States is seventh in the list of exporters to India. The United Kingdom has about five-eighths of the trade; Austria-Hungary, Belgium, Russia, and Germany each send nearly three times as much as the United States, and France a small amount in excess.

It will be seen by the total amount of imports what a field India offers for our manufacturers and exporters. There is no reason why they should not compete successfully with those of Europe for this large trade, in many items of which they do not participate.

The only obstacle to the development of trade between the United States and India is the want of a rapid, direct steamship line, so that goods may be delivered within a reasonable time. It is true that there is a direct line of steamships to New York, but the ships touch at almost every port between Gibraltar and Calcutta, so that goods shipped via Liverpool or Glasgow arrive here quite as soon. If importers could rely upon quick delivery of goods, I believe that the trade would increase threefold within two years.

The demand for all kinds of electrical machinery, especially, is rapidly increasing, and American manufactures are generally preferred.

British and German houses have agents here and are pushing for the business. To secure a fair share of this large trade, our exporters should put energetic representatives into the field with samples of their goods. India has been neglected for markets nearer home, hence the small percentage of imports from the United States.

I know of no place that offers such inducements to our exporters of all classes of manufacture as Calcutta, the principal distributing point of India, whence a population of nearly 200,000,000 draw their supplies.

R. F. PATTERSON,
Consul-General.

CALCUTTA, *May 13, 1903.*

TRADE OF DENMARK IN 1901-2.

Official statistics have recently been published by the Statistical Bureau in Copenhagen, which afford an opportunity for a review of the trade of Denmark for the last two years. There is general complaint that times are dull.

The figures setting forth the value of the foreign trade of Denmark, however, do not indicate that the country is suffering. The lack of confidence which one hears so much about does not have any apparent effect upon the aggregate amount of the trade of Denmark with other nations. Denmark is an agricultural country, and nothing short of a failure in crops can, from an economic standpoint, cause any great disturbance in her equilibrium. So long as she can export butter to the value of $35,000,000 annually, and horses, cattle, and pork to the value of $25,000,000, as was done in 1902, she is bound to remain, on the whole, in a normal condition.

The following tables have been prepared from official statistics. They show the value of the total foreign trade of Denmark for the five years 1897–1901, the value of the domestic exports, and her imports for consumption for the year 1902. Statistics giving the total volume of trade for 1902 are not yet available.

Imports.

Year.	Imports for consumption.	Other imports.	Total.
1897	$87,343,344	$24,358,520	$111,701,864
1898	98,443,904	25,430,788	123,874,692
1899	107,137,224	24,739,948	131,877,172
1900	111,534,632	29,648,572	141,183,204
1901	106,371,344	31,055,572	137,426,916
1902	116,716,680	....	....

Exports.

Year.	Domestic exports.	Foreign exports.	Total.
1897	$65,248,352	$22,688,076	$87,936,428
1898	63,924,700	23,540,048	87,464,748
1899	72,394,572	25,297,056	97,691,628
1900	75,553,220	29,923,540	105,476,760
1901	78,290,036	31,205,652	109,495,688
1902	85,829,680	....	....

Total foreign trade.

1897	$199, 638, 292
1898	211, 339, 440
1899	229, 568, 800
1900	246, 659, 964
1901	246, 922, 604

A foreign trade aggregating in value $247,000,000 (an increase of nearly $50,000,000 in five years) is remarkable for a country of only 2,500,000 population. For comparison, it may be stated that the ratio of the population of Denmark to that of the United States is about 1 to 30, while the total foreign trade of the two countries is 1 to 10. In other words, the United States, with thirty times the population of Denmark, has but ten times its foreign trade.

From the above tables, it will be noticed that Denmark imports considerably more than she exports. In 1897 her imports were $23,765,000 more than her exports; in 1899 the difference was $34,186,000; in 1900, $35,700,000. In 1901 there was an improvement, the adverse balance amounting to $27,900,000.

Denmark, however, it should be remarked, carries on this immense trade herself, and the money paid for freight does not go into the pockets of foreigners.

SOURCE OF IMPORTS.

Four-fifths of the imports into Denmark come from five countries, namely, Germany, Great Britain, United States, Russia, and Sweden. The value of imports for the five years 1897–1901, from the five countries named, is given below:

Country.	1897.	1898.	1899.	1900.	1901.
Germany	$34,652,668	$35,831,868	$38,659,804	$41,156,224	$39,529,196
Great Britain	21,120,276	26,046,116	26,939,092	28,968,924	23,562,292
United States	12,953,780	17,176,656	20,943,128	20,860,852	23,292,148
Russia	10,374,012	10,162,292	9,857,040	13,145,668	15,562,760
Sweden	13,842,200	14,114,220	13,835,500	14,077,504	12,701,324
All other countries	18,758,928	20,543,540	21,642,608	22,974,032	22,779,196
Total	111,701,864	123,874,692	131,877,172	141,183,204	137,426,916

The following percentage table indicates how the import trade of Denmark has shifted during the past fifteen years:

Country.	1882-1886.	1901.
	Per cent.	*Per cent.*
Germany	36.4	28.7
Great Britain	22.6	17.1
Sweden	14.2	9.2
United States		16.9
Russia		11.3
Total	73.2	83.2

The United States has, in the time indicated, sprung from obscurity to second place. The above figures show us as occupying third place; but when it is considered to what extent goods are shipped into Denmark from the United States via Germany and England and credited to those countries in the official statistics, it is seen that the United States unquestionably occupies at present a position second only to that of Germany.

The value of imports from the United States in 1896 was, according to Danish statistics, $4,562,164; in 1897 it was $12,953,780, and in 1901 over $23,000,000. While there has been a healthy growth in our trade with Denmark, these sudden and enormous gains, as will be seen by an examination of the figures which follow, were in a comparatively few articles.

The first great gain was in 1897, when the increase over 1896 amounted to $8,391,616, the total value of our trade being nearly trebled in one year. Seven-eighths of this gain was in three articles—maize, oil cake, and wheat.

In 1898 there was another material increase ($4,223,000) in the value of our exports to Denmark. The gain, while more or less general, was confined particularly to four agricultural products—oil cake, rye, cotton, and wheat. There was also a large increase in the import from the United States of lard, oils, cast and wrought iron wares, cycles, and cycle parts.

For the two years 1899–1900 the value of our exports to Denmark remained practically the same. There was a falling off in 1900 of $82,276.

In 1901, however, there was an increase over 1899—the banner year previous to 1901—of $2,619,164, in spite of a marked decrease in the import of maize from the United States.

In 1899 Denmark took from us 870,774,000 pounds of maize, while in 1901 her purchases amounted to but 478,104,000 pounds, or a difference in value of $3,146,000. This large loss was balanced by two articles, namely, wheat, in which there was an increase of

$1,856,000 over 1899, and lard, the increase in which amounted to $1,554,000.

The additional increase noted—$2,619,000—was covered by three articles, namely, oil cake, oleomargarine, and pork, as will be seen by the following table:

Imports from the United States in 1899 and 1901.

Article.	1899.		1901.		Increase in 1901.
	Quantity.	Value.	Quantity.	Value.	
	Pounds.		*Pounds.*		
Oil cake	199,918,000	$2,715,644	259,011,000	$3,699,188	$953,544
Oleomargarine	6,408,000	589,064	11,479,000	1,238,160	649,096
Pork (bacon, hams, etc.)	2,621,000	179,028	9,989,000	1,072,392	893,364
Lard and other fats	13,606,000	838,840	21,774,000	2,392,436	1,553,596
Wheat	65,562,000	1,089,688	180,202,000	2,945,856	1,856,168
Total increase					5,905,768

IMPORT OF MAIZE IN 1902.

Danish statistics for 1902, when completed, will undoubtedly show a marked decrease in the value of imports from the United States, owing largely to the failure of our corn crop in 1901.

In corn and oil cake, Russia is our great competitor. When for any reason we can not meet the demand, Russia steps in. Of the 1,000,000,000 pounds of maize shipped into Denmark in 1899, the United States is credited with over 800,000,000 pounds and Hamburg with most of the remainder—which means that it came from the United States via that port, in all probability. Of the 656,000,000 pounds of maize shipped into Denmark in 1902, we furnished but 47,000,000 pounds, while Russia sent 431,000,000 pounds and the Danube countries 108,000,000 pounds. Practically all of this corn was loaded at Black Sea ports and brought to Copenhagen by Danish steamers owned by the East Asiatic Company, of Copenhagen.

The following table shows the total import of three principal articles of food for stock for the four years 1899–1902 and our share in the trade. Imports from Hamburg are also given, inasmuch as they come for the most part from the United States to Hamburg for transshipment to Denmark.

Imports of three articles of food for stock for the years 1899–1902.

Whence imported.	Maize.	Oil cake.	Bran.
1899.	*Pounds.*	*Pounds.*	*Pounds.*
Total imports	1,029,000,000	370,000,000	144,000,000
United States	871,000,000	182,000,000	26,000,000
Hamburg	153,000,000	15,000,000	22,000,000

Imports of three articles of food for stock for the years 1899–1902—Continued.

Whence imported.	Maize.	Oil cake.	Bran.
1900.	*Pounds.*	*Pounds.*	*Pounds.*
Total imports	872,000,000	425,000,000	128,000,000
United States	669,000,000	200,000,000	16,000,000
Hamburg	182,000,000	12,000,000	10,000,000
1901.			
Total imports	621,000,000	496,000,000	109,000,000
United States	478,000,000	259,000,000	10,000,000
Hamburg	107,000,000	133,000,000	3,000,000
1902.			
Total imports	656,000,000	608,000,000	213,000,000
United States	47,000,000	256,000,000	30,000,000
Hamburg	50,000,000	15,000,000	24,000,000

Imports for consumption of three articles of food for stock for 1901 and 1902 and average value for 1897–1901.

Article.	Average value for 1897–1901.	Value for 1901.	Value for 1902.	Increase over 1901.
Maize	$7,884,000	$6,726,000	$7,504,000	$778,000
Oil cake	4,809,000	6,684,000	8,549,000	1,865,000
Bran	1,302,000	959,000	1,951,000	992,000
Total	13,995,000	14,369,000	18,004,000	3,635,000

There was an important increase in the total imports of oil cake in 1902, but a slight falling off in the imports from the United States. Russia supplied the increased demand for this article.

While the figures show that the aggregate value of our trade with this country fluctuates largely, according to the conditions of trade in a limited number of articles, it should also be remembered that Denmark is a very liberal customer in many other lines. It is true that of $23,000,000 paid us in 1901, $11,000,000 was for five articles, namely, oil cake, oleomargarine, pork, lard, and wheat; but a great variety of other goods was purchased with the remaining $12,000,000. For instance, the demand for American-made shoes is steadily increasing; Danish business men write their letters on American typewriters and keep their cash accounts on American cash registers; the American bicycle is always popular; the American automobile is finding a place in this market—in short, American goods of every description, if reliable and up to date, find a ready sale in Denmark. The Danes enjoy the double advantage of knowing good things when they see them and of having money with which to purchase them.

RAYMOND R. FRAZIER,
Consul.

COPENHAGEN, *May 4, 1903.*

TRADE OF FUCHAU IN 1902.

Fuchau is situated on the Min River, about 30 miles from the coast. It is the capital of the province of Fukien and the residence of the governor-general of Min-che. Min-che includes the two provinces of Fukien and Chekiang and the large cities of Amoy, Fuchau, Hinghua, Fuching, Yenping, Shaowu, Wenchow, Ningpo, and Hanchow. It has a population of perhaps 55,000,000.

Both provinces are largely engaged in agriculture and fishing, their chief products being tea, rice, cotton, millet, wheat, barley, mulberry for silkworms, camphor, poppy, vegetables, oranges, lichee, beans, mushrooms, potatoes, groundnuts, langngans, bamboo shoots, and, in northwestern Fukien, immense quantities of timber (poles). The most important manufactures are silk, lacquer ware, soapstone ware, pottery, fans, lanterns, umbrellas, chopsticks, medicines, paper, joss paper, firecrackers, dried fish, opium, cotton goods, clothing, straw sandals, and embroidered shoes with paper soles.

Fuchau has a large navy-yard, a granite dry dock, and an arsenal, all of which belong to the province. These are located at Pagoda anchorage. There are also two arsenals at the city which are engaged in the manufacture of Mauser rifles, small smoothbore guns and gun carriages, and ammunition. The machinery and large tools used in these works were made in Germany and France.

Within the last year the old Foster Dock, with its shops, has been put in repair. It is now capable of accommodating small-draft vessels. Both dock and shops are operated by a British firm.

IMPORTS.

The value of most foreign imports in 1902 does not differ materially from that in 1901.

Cotton yarn.—Cotton yarn from India shows a gain of 1,000 piculs (133,333 pounds); Hongkong yarn increased 1,500 piculs (200,000 pounds); while the imports from Japan fell off from 4,388 piculs to 501 piculs (585,066 pounds to 66,800 pounds).

Opium.—In the revenue, the largest increase was on foreign opium—27 per cent. This article contributed 39 per cent of the entire revenue, as against 28 per cent in 1901.

Flour.—The importation of flour—mostly American—shows a total of 4,380,067 pounds, an increase of 613,000 pounds over 1901.

Kerosene.—American kerosene increased in imports from 10,210 gallons to 395,030 gallons and the Sumatra oil from 1,642,455 gallons to 2,445,700 gallons. On the other hand, Russian oil has entirely disappeared from the market. American oil is now very expensive—$3.40 Mexican ($1.46) per case of 10 gallons—and, Sumatra oil being much cheaper, importation of the former will probably decrease during the coming year unless prices are lowered. The rate for American Comet oil is about 13 cents gold per gallon.

Cotton goods, etc.—Of cotton goods, American drills fell from 10,156 pieces to 4,759 pieces; chintzes, from 8,971 pieces to 6,398 pieces; Turkey-red cottons, 8,505 pieces to 6,610 pieces. Foreign buttons increased 6,000 gross and carpets 413 rolls.

EXPORTS.

Tea.—As the most important product of the province of Fukien is tea, it is interesting to note that the shipments to the United States amounted to 11,210,949 pounds, an increase of 4,586,600 pounds. This increase is due largely to the fact that big shipments were made to be held in the bonded warehouses in the United States until after January 1, when the duty of 5 cents per pound would be removed, and were in the nature of a speculation. Shipments to all other countries show a decline, notwithstanding the decrease of the Chinese export duty. There is a very decided movement in favor of manufacturing green tea, especially for the American market.

Potatoes.—Of white potatoes, 30,000 piculs (about 4,000,000 pounds) have been shipped from this port, much of which has gone to the Philippine Islands, either direct or through dealers in Shanghai or Hongkong.

MATCHES.

The English match factory, started in 1898, was closed during the past year. Its failure was due to the great expense of importing wood and chemicals from Japan and to the inferior quality of the manufactured article. The plant has been purchased by Messrs. Dodwell & Co., who have installed modern machinery and adopted new methods of preparing Chinese wood. They have also employed an expert American as superintendent, and are quite confident they can now rival Japanese matches in both quality and price.

Matches are extensively used by the Chinese, and there is a large and increasing market for them, as shown by the fact that, while the output of the Fuchau factory fell off from 187,050 gross to 15,650 gross, the import of Japanese matches during 1902 was 216,579 gross, against 160,650 gross for the previous year.

COAL MINING.

British and French prospectors have been visiting the coal fields in the northwestern part of the province, near Kiening and Shaowu, and in the southern part, back of Amoy; and a British company has now commenced operations in the latter district, under grant from Peking, confirmed by the viceroy of Min-che.

The rules and regulations of the Fukien Mining Board are not thought practicable in their present form. Until the ministers of foreign powers at Peking act upon the general mining regulations which have been presented to them, these rules of subordinate provincial governments will not be considered as binding, except in the most general way, upon foreign capitalists who may wish to open mines. There will not, however, be any difficulty in getting modifications, as the high officials seem very willing to encourage mining operations. The British company above referred to has also received the privilege of constructing a railway from the mines to tide water, which in this instance will be to Amoy.

The coal found in this province is generally anthracite, but bituminous exists in some localities. There are opportunities for profitable investment of American capital in the mining operations in several parts of Fukien, and also for the construction of a railroad from Fuchau to Amoy in the south and to Ningpo and Shanghai in the north.

CAMPHOR.

The camphor forests in the northwest part of the province are a monopoly of the Chinese provincial government, which has established depots, where all persons are required to bring their camphor. Foreign dealers buy from these depots; they are not permitted to purchase direct from natives in the interior.

LIKIN.

Camphor may now be brought out under the transit-pass system, and an effort is being made by certain British tea firms to bring tea down to Fuchau under the same system, which requires only the payment of half duty in addition to the export duty to foreign countries, thus exempting the foreigner from the payment of the likin duties up country and all the way along the road to Fuchau. This is resisted by the provincial authorities, because they receive all the likin taxes, while the duties paid under the transit-pass system go mostly to the General Government through the imperial Chinese customs.

FOREIGNERS.

There are about 700 foreigners living in this consular district, seven out of every eight of whom are engaged in missionary work and connected with the families of missionaries. They are widely scattered through the district, some being 250 miles from Fuchau. The Christian denominations represented are the American Board Mission, American Methodists, Roman Catholics, and English Church missions, each of which has had representatives at work in this district for over fifty years.

EDUCATION.

Educational and medical work have received the greatest attention. Two large high-grade colleges in Fuchau, conducted by the Methodist Church and the American Board, have received most encouraging support from the officials and well-to-do classes. Entrance to these institutions is at a premium, in consequence of limited facilities. The Methodist Mission, including five large buildings and two more soon to be erected and the grounds on which they stand, has been purchased with funds contributed entirely by the Chinese. The course of study in this school, as well as in that of the American Board Mission, covers five years. One of the greatest difficulties the missionaries in charge meet with is that the Chinese officials are continually making offers of liberal salaries to students who have been in these institutions two or three years and have obtained a fair knowledge of English, for service in the yamens, customs and telegraph service, arsenal, docks, etc., which cause many of them to leave before graduating. Students from these schools are now serving all over China, from Peking to Canton, and even in Singapore, Borneo, Sumatra, and the Philippine Islands. Some 500 primary schools have been established in this district, most of which are feeders to the higher grade schools above mentioned.

SAMUEL L. GRACEY,
Consul.

FUCHAU, *March 26, 1903.*

TRADE IN NORTHERN BRAZIL.

RUBBER.

The total shipments of rubber from Para from July 1, 1902, to May 1, 1903, have been 26,040 tons, as against 26,655 tons during the same period of the preceding season. The shortage is due to the troubles in the Acre territory. The crop, however, lacks but a few hundred tons of equaling that of last season, which was the largest ever known.

BRAZIL NUTS.

The total amount of nuts shipped from the Amazon Valley so far this season is 3,953 tons, and has been about equally divided between Europe and the United States. Estimates for the remainder of the season vary greatly. Certain sections which have generally supplied large quantities of nuts have sent very few, owing to the opening of new rubber fields in their vicinity, which are more profitable to the Indians than the nuts. Up to date, the crop of this season is 15 to 20 per cent less than that of last year. The average quality of the nuts has been excellent.

CACAO.

The cacao crop is just beginning to come in freely. So far the quality is good and the quantity well up to the average; but no estimate can be made as yet as to the size of the crop this season. While Europe—especially France and the Netherlands—still takes the greater portion of this crop, the United States is every year increasing its imports of this staple.

IMPORTS FROM THE UNITED STATES.

Trade between the United States and northern Brazil is growing, despite depressed conditions here. One steamer from New York recently brought 15,000 barrels of flour and 12,000 cases of kerosene. Another item worthy of mention is the recent arrival of 1,200 barrels of machine oil for ships, etc., consigned to a local firm; also a large cargo of rosin. I note a growing demand for American canned foods. Our cotton goods are finding favor in this market, especially prints, calicoes, plaids, and ginghams. The imports of machinery and machinery tools, marine supplies, sawmills, sugar mills, and general hardware from the United States are steadily gaining, although our manufacturers do not give as easy terms as their European competitors. The Collins Company has an enterprising representative in this territory who is making a canvass of the entire valley as far as Iquitos, Peru.

K. K. KENNEDAY,
Consul.

PARA, *May 7, 1903.*

PHOSPHATE CONCESSION IN BARBUDA, WEST INDIES.

Consul W. R. Estes sends from Antigua, June 1, 1903, copy of a notice of tender for a concession to mine phosphate in the island of Barbuda, issued by the colonial secretary. The consul adds:

Barbuda is a small island about 28 miles northwest of Antigua, and is reached by sailing vessel from this port. It is reported that rock on the island contains 50 to 80 per cent of phosphate, but the extent of the deposit is unknown.

The notice reads:

Tenders will be received up to the 1st of October, 1903, at the office of the colonial secretary, Antigua, for a concession to mine phosphate of lime or of alumina in the island of Barbuda, subject to the following conditions:

1. The tenderer shall state the royalty he is prepared to offer per ton of phosphate exported.

2. The tenderer shall be allowed to cut firewood for the purposes of working this concession within the island at a royalty of 1s. (24.3 cents) per cord (measuring 8 by 4 by 4 feet), provided that such wood shall only be cut on areas indicated by the manager, and that no timber or brushwood having a value for other purposes than that of firewood shall be cut under this concession.

3. The tenderer shall be allowed to have a site for a wharf and storage on the lagoon not exceeding 10 acres, at the yearly rent of 5s. ($1.21) an acre, provided that such site shall be beyond half a mile from the limekiln in front of the "Great House."

4. The tenderer shall have power to lay tramways to facilitate mining operations, subject to the right of the government to prescribe the route to be followed and the precautions necessary as regards gates, fences, and crossings.

5. The concession to be for the period of twenty-one years.

6. Preference to be given to the tenderer offering the highest royalty, starting from 9d. (18 cents) per ton exported as the "upset" price.

7. The concession to be voidable at the option of the government if less than ten men are constantly employed thereon, or in case of any transfer of the concession, direct or indirect, wholly or in part, without the previous sanction of the government.

8. The acceptance of tenders received shall be subject to the final approval of the secretary of state, and the government does not bind itself to accept the highest or any tender.

REGISTRATION OF PATENTS AND TRADE-MARKS IN CUBA.

The Department has received from the legation of Cuba at Washington, under date of May 27, 1903, translation of the instruction regarding the procedure to be followed for the deposit in Cuba of trade-marks and patents granted abroad, as follows:

For the deposit and resulting protection in this Republic of any foreign patent, the party in interest shall apply therefor to the Department of Agriculture, Industry, and Commerce of the said Republic, personally or through an attorney, and deliver a certified copy of his inscription in the country of origin, with the respective explanatory memorial. The signature of the commissioner of patents or of the head of the office in the country of origin by whom the said copy is attested shall be authenticated in the form prescribed by decree No. 48,* dated April 17, 1903, of the President of this Republic, in order to be valid at law. These documents shall be accompanied by a translation of the same into the Spanish language, made or subscribed by any one of the notaries public of the Republic authorized to that effect, or by its diplomatic or consular officer residing at the place whence the said documents come. These documents, as well as the plans of the patent, shall be submitted in duplicate; the second copy of the translation may be signed by the party in interest. If the patentee wishes to request the deposit of his patent in this Republic through a third party, he shall forward at the same time the corresponding power issued in favor of the person that is to represent him. In order to have legal value, the power of attorney shall also be authenticated in the form above indicated. After the acceptance of the deposit in this Republic, if it takes place, notice of such acceptance shall be given to the applicant (patentee or attorney), so that he may remit to the bureaus of revenues and taxes of the fiscal zone of Habana the dues, amounting to $35 in United States currency, and upon presentation in the Department of

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*ADVANCE SHEETS No. 1664 (June 5, 1903).

Agriculture, Industry, and Commerce of the receipt that shall be delivered by the aforesaid treasury bureau, there shall immediately be issued a certificate of deposit of the patent, dealt with in the name of the patentee.

In the case of marks of all kinds, industrial designs, etc., the procedure will be practically the same as for the deposit of patents. The only difference is that the amount of dues in such cases is reduced to $12.50 in United States currency, and that after the deposit shall have been accepted, and before the certificate of the said deposit shall be issued, the applicant shall submit five additional copies of the corresponding diagram of the mark or industrial design. In order to expedite such matters in the Republic of Cuba, it is recommended, for convenience' sake, that some person be appointed here with sufficient powers to attend to them in this city.

Approved.

MANUEL DIAZ.

The following explanatory statement is also inclosed:

The authentication of patent documents, of the United States and other countries, which it is desired to deposit in the Republic of Cuba for the purpose of protection, is required only for one of the two copies that must be presented for deposit, the second copy being a mere transcript of the first and signed by the applicant or his attorney; the certification by the proper public officer of the translations into the Spanish language of one of the copies that are to accompany the originals in the foreign language will also be sufficient. For marks, industrial designs, etc., the same procedure must be followed—that is, the five additional copies of the corresponding diagrams, as they have been registered in the patent office of the country of origin, must be delivered after the granting of the deposit.

SUGAR PRODUCTION OF CUBA.

Under date of May 29, 1903, the Department has received from Minister Squiers, of Habana, the following statement of sugar exported and sugar on hand up to April 30, 1903, compared with like period of 1902, in bags of 320 pounds each:

Port.	1902.		1903.	
	Exports.	On hand.	Exports.	On hand.
	Bags.	*Bags.*	*Bags.*	*Bags.*
Habana	81,552	705,193	181,226	530,682
Matanzas	59,529	805,570	304,047	701,077
Cardenas	118,097	815,768	316,794	750,473
Cienfuegos	395,931	273,156	660,976	201,075
Sagua	38,326	213,112	162,817	121,148
Caibarien	49,426	216,276	71,388	334,557
Guantanamo	113,847	152,425	187,259	101,588
Manzanillo	91,890	44,930	204,631	38,900
Nuevitas	61,750	61,856	53,420	22,660
Gibara and Puerto Padre	117,322	61,010	152,320	17,313
Zaza	8,052	15,230	7,730	10,835
All other	29,643	21,552	58,789	31,550
Trinidad	....	59,940	35,369	27,241
Total	1,165,365	3,446,018	2,396,766	2,789,099
Total tons*	116,481	492,288	342,395	398,442

* 1 ton=2,240 pounds.

Recapitulation.

Description.	1902.	1903.
	Tons.	*Tons.*
Total exported and on hand	658,769	740,837
Local consumption for 4 months	14,050	14,880
Total	672,819	755,717
On hand January 1 (preceding year's crop)	19,873	42,530
Received at ports up to April 30	652,946	713,187

This year's production of sugar in the district adjacent to Cienfuegos, it is stated, will be considerably less than was figured at the commencement of the grinding season, owing to the unseasonable rains in the months of January and February. It is estimated that the production will nevertheless exceed that of last year, as the following figures will show:

There has come into Cienfuegos from January 1 up to April 25, 1903, 714,113 bags, against 697,796 bags in 1902. From January 1 to April 25, 1903, 569,900 bags have been exported, against 420,931 bags in 1902. There was in store April 30, 144,213 bags of the sugar that has come into Cienfuegos since January 1 to April 25, 1903, against 276,865 bags in 1902.

On account of the inclement weather in January and February it will be impossible to grind all the cane standing unless the wet season should fail to set in at the usual time. As far as the harvest is concerned the Cuban planters have reason to be satisfied with this year's crop.

BRIDGE OVER THE ARIMAO RIVER, CUBA.

The largest bridge yet constructed in Cuba was completed and opened to the public on May 15. It is 20 miles from Cienfuegos, on the road to the Manicaragua Valley, the tobacco-growing belt of Santa Clara Province.

The bridge spans the Arimao River and is 454 feet in length, with a width of 17 feet. It has two piers and two abutments of hydraulic concrete; Atlas cement was used, and granite for stone capping. The piers are 35 feet above the normal stage of water, and the flooring is of native hard woods—mahogany, black jucaro, and sabicu. It is a steel bridge, of the Pratt riveted system, made by the American Bridge Company, of New York; 11,000 rivets were driven in Cuba.

The contract was let February 13, 1902, at a cost of $50,000. The work of construction was somewhat retarded by floods, which twice carried away the supporting works.

Manicaragua Valley is 36 miles northeast of Cienfuegos, but there will soon be a well-graded and macadamized highway covering the greater part of the distance; and this, in connection with the bridge, opens up to settlement one of the most fertile regions of the island, as the Manicaragua tobacco is said to excel that of Vuelta Abajo in aroma.

The completion of this bridge not only marks an epoch in the development of this section of the island, but is also highly appreciated by those having occasion to use it, because traffic was sometimes suspended for thirty days before construction on account of floods in the Arimao.

MAX J. BAEHR,
Consul.

CIENFUEGOS, *June 2, 1903.*

INTERNATIONAL COMPETITION IN SOUTH AMERICAN MARKETS.

Consular Clerk G. H. Murphy sends from Frankfort copy of a letter to the Frankfort Zeitung from its correspondent at Buenos Ayres relative to foreign competition in the markets of South America, of which the following is a partial translation:

The statistics of the foreign trade of the Argentine Republic, which have just been published, reveal the exact extent of the influence exerted upon commerce by the bad crops of 1901-2 and by the increase of duty rates, in lessening both consumption and importation. The value of imports decreased from $113,900,000 gold in 1901 to $103,000,000 in 1902, Germany's share of this trade declining from $16,700,000 to $13,200,000 gold. Importations from Belgium, which naturally included many transit shipments from Germany, decreased during the same period from $8,700,000 to $5,500,000 gold. Thus the entire falling off in importations from Germany amounted to more than $4,000,000. The United States—whose importations into the Argentine Republic about equal in value those of Germany—and Italy suffered each a loss of about $2,500,000. Great Britain alone had a small increase—from $36,500,000 to $37,000,000—but this was due to the fact that coal and railway materials continued in demand, in spite of the generally unfavorable condition of the market.

It seems probable, however, that in 1903 the amount of the falling off in 1902 ($11,000,000) will be at least recovered; for, while the wheat and linseed crops will probably not reach the fabulous figures recently predicted by the Argentine Minister of Agriculture, the exports of these two articles will very likely amount to $50,000,000 and $20,000,000 gold, respectively, an increase for these two cereals alone of about $35,000,000.

It may be well to explain here the cause of the decreased importation from Germany. It is not due to United States competition in South America, as the United States has had very little success there, except in the Argentine Republic.

The following tables compare exports from Germany and the United States* to the principal South American countries, the values being stated in United States currency:

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* Figures for the United States are for the fiscal years.

Exports from United States.

Year.	South America.	Brazil.	Argentine Republic.	Venezuela.	Colombia.	Chile.
1892	$33,100,000	$14,300,000	$2,900,000	$4,000,000	$3,100,000	$3,500,000
1894	33,200,000	13,900,000	4,900,000	4,100,000	2,800,000	2,300,000
1896	36,300,000	14,300,000	6,000,000	3,800,000	3,400,000	3,400,000
1898	33,800,000	13,300,000	6,400,000	2,700,000	3,300,000	2,400,000
1900	38,900,000	11,600,000	11,600,000	2,400,000	2,700,000	3,300,000
1901	44,700,000	12,000,000	11,500,000	3,300,000	3,100,000	5,300,000
1902	38,100,000	10,400,000	9,800,000	2,800,000	3,000,000	3,700,000

Exports from Germany.

Year.	Brazil.	Argentine Republic.	Chile.	Venezuela.	Peru.
1892	$12,350,000	$8,370,000	$10,750,000	$1,280,000	$1,400,000
1894	13,560,000	7,180,000	5,350,000	1,470,000	1,000,000
1896	14,350,000	10,520,000	8,230,000	1,520,000	1,730,000
1898	10,750,000	10,630,000	4,830,000	1,020,000	1,620,000
1900	10,870,000	15,230,000	9,490,000	1,190,000	2,350,000
1901	8,450,000	12,900,000	8,090,000	1,660,000	2,640,000

The entire exportation of the United States to South America has increased $5,000,000 during the eleven years 1892–1902, but what does this mean when it is remembered that during the same period the aggregate exports of the United States to other parts of the world increased $400,000,000? Moreover, were it not for the increased purchasing power of the Argentine Republic—which has enabled the United States during the period mentioned to increase its exports to this one country to the extent of $7,000,000—there would have been not only a relative but an actual decrease in the total value of exports from the United States to South America.

German exports to the Argentine Republic, it will be noted, have increased at almost the same rate as those of the United States.

In Brazil, both the United States and Germany have lost ground, not only in exports, but also (owing to low coffee prices) in imports. The importations of the United States decreased from $118,600,000 in 1892 to $79,200,000 in 1902, Germany's decrease being from $32,300,000 in 1892 to $27,100,000 in 1901. On the other hand, Germany's importations from the Argentine Republic increased in these years from $20,700,000 to $47,800,000, while the importations of the United States only increased from $5,300,000 to $11,100,000 in the eleven years 1892–1902. During the same period, Chile's exportations increased as follows: To Germany, from $17,850,000 to $24,030,000; to the United States, from $3,500,000 to $7,700,000.

Germany has accordingly, during the past ten years, succeeded in maintaining in South America the second rank after Great Britain. Her strong position is based upon the vast productive capacity of German factories, and also upon the readiness of German exporters to meet the wishes of their foreign customers.

In giving these figures, I do not wish to encourage too great a feeling of security, for it is natural that the North Americans will continue in the future to work with energy for the strengthening of their position in a market where they have already had some success.

TIMBER CONCESSIONS IN DUTCH GUIANA.

Minister Newel transmits from The Hague, under date of May 15, 1903, a statement from the governor of Surinam relating to concessions for cutting timber in Dutch Guiana, which reads, in substance:

No concession of less than 400 hectares (988.4 acres) is granted. Thus far, the concessions are granted only for squares or rectangular plots, with payment in advance at the rate of 10 cents per hectare (2.471 acres) and for one year. The holder has a prior right to renewal of the concession. The grants are made by the governor of Surinam and the government reserves the right, at all times, of instituting an inquiry into the manner in which the work is carried out. The holder of the concession is empowered to avail himself of all the different sorts of wood found on the territory, with the exception of the bolletrie boom (*Lucuma mammosa Juss*). Pending further regulations by colonial order, these concessions shall be granted on the following conditions:

1. Except for the cutting down of fuel and the working of timber, no trees shall be felled, deprived of their bark or resin, or injured in any other way, on penalty of $1 for every tree thus injured.
2. Government right of supervision.
3. Persons employed shall be under proper control.
4. Withdrawal of the concession in case of failure to comply with conditions.
5. Expenses of concession shall be refunded by the holder.
6. Authorities are not responsible for any difference in the situation, area, form, or boundaries between the territory conceded and the indications of the chart according to which the concession was granted.
7. The concession does not prevent the erection on the territory of works of public usefulness, either by the authorities or by private persons or societies, with the consent of the authorities, the holder of the concession having no claim to indemnity or subsidy whatever.

EMERALD MINES IN COLOMBIA.

Consul-General A. M. Beaupré, of Bogotá, under date of April 29, 1903, sends a copy of the conditions* prescribed by the Government for the presentation of bids and for the leasing of the Muzo and Coscuez emerald mines. These mines, the property of the Colombian Government, are to be leased to the highest bidder, the proposals to be received by the Government on December 31, 1903. To be admitted as a bidder, it is required:

1. Not to be in debt overdue to the National Treasury, the fact to be established by a certificate issued by the treasurer of the Republic.
2. To produce the sealed proposal addressed to the Minister of Finance before 10.30 a. m., December 31, 1903.

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*Filed in the Bureau of Trade Relations.

3. To add a certificate of the treasurer-general stating that the bidder has deposited in the National Treasury in American gold or in drafts on London, Paris, or New York, payable, at most, thirty days' after sight to the order of the same treasurer and backed by a respectable bank in Bogotá, or by receipts from the Crédit Lyonnais, London Bank, or Union Bank, if the bidder is a foreigner, the amount of $50,000 required as a guaranty against bankruptcy.

4. To present a signed statement, accepting, without any restriction whatsoever, the stipulations set forth in these presents. The minimum monthly rent shall be $30,000 American gold for the ten years' lease. Proposals which do not cover this amount shall not be admitted. At all times the Government reserves to itself the right to inspect the mines, in order to prevent damages, and the liberty to declare the contract null and void by reason of said damages. The Government may occupy said mines without applying to the judicial authorities and even by having recourse to force.

NEW TARIFF OF COLOMBIA.

The Department has received from Consul-General A. M. Beaupré, of Bogotá, translation of the new Colombian tariff, as follows:

CUSTOMS TARIFF.

FIRST CLASS.

Taxed at the rate of 20 cents (7 cents gold) per kilogram (2.2046 pounds).*

Paper in the form of journals, pamphlets, and other printed matter.

Building woods, such as shingles, beams, sleepers for railways, and planks and boards, neither planed nor finished; wood in the form of carriages and trucks for railways; houses not adjusted.

Iron and steel in rails, rail spikes, and other materials for public railways; in bridges for public roads; in gasometers, apparatus, conducts, and lamps for public lighting; articles of iron intended for the construction or repair of penitentiary establishments; in telegraph wire for public use; in railing for ornamenting public buildings and squares; lighting conductors; conducts for public drains of the districts and for public fountains or basins.

Copper or bronze in the form of statues for the ornamentation of public buildings and squares.

Gold coins of a fineness of not less than 90 per cent.

Silver in coins of a fineness not less than 90 per cent.

Marble in statues and monuments destined for the ornamentation of public buildings and squares.

Clay tiles, building material, such as unwrought stone, clay bricks, and tiles made of burnt clay and stone.

Live animals.

Yarns, white and colored, prepared with finish.

SECOND CLASS.

Taxed at 45 cents (16 cents gold) per kilogram.

Coke.

Sweet potatoes or yams, potatoes, onions, maize, rice, chick-pease, lentils, beans, and all other kinds of vegetables, pot herbs, and fruits, fresh.

Ice.

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*Taking the value of the Colombian peso, as estimated by the United States Mint, April 1, 1903, at 35.2 cents gold.

Wheat flour prepared for vermicelli and other similar alimentary pastes imported for the manufacture of said product.

Printing inks for bookbinders or lithographers, liquid or solid.

Sacks or bags (empty) of coarse cloth, tarred or not, with or without waterproof paper, and coarse tissue for the manufacture of such bags.

Caoutchouc in the form of hose for fire engines.

Demijohns and common bottles of black glass or of common white glass.

Tallow, not manufactured.

Stearic acid, niter, and sulphur, crude; flower of sulphur; sulphur in powder, sticks, or cylinders; and products and substances necessary for the treatment of metals by the action of chlorides, such as sulphuric acid, bromine, bromide of potash and soda, chloride of lime (bleaching powder), hyposulphite and carbonate of soda, and caustic soda.

Blue blotting paper for packing vermicelli and other alimentary pastes.

Common woods (planed) and cabinetmakers' woods (planed or not), unwrought, with the exception of veneers; boats, mounted or not, intended for the navigation of the inland waters of the Republic; machinery for mining purposes.

Boards for making boxes to contain vermicelli or other similar alimentary pastes and intended for the manufacture of these products; used furniture, imported by Colombian envoys extraordinary and ministers plenipotentiary on their return to the country.

Empty bags of jute or sisal hemp, tarred or not, with or without waterproof paper, and tissues of said material for the manufacture of these sacks.

Hay and straw.

Iron, crude, in vessels or parts of the same; light-houses and lanterns; iron houses and galvanized iron in plates and sheets for roofing; fire engines and apparatus; machines for mines; machines for arts, trades, and industries; machines of all kinds, the weight of which exceeds 1,000 kilograms (2,204.6 pounds); tanks for potable water; iron wire (barbed wire) for fencing and staples and other accessories for fixing same; stampers and blocks of iron, steel, or bronze for ore-crushing machines and mills.

Marble and jasper in slabs and tiles; marble in powder, clay, Roman earth or cement, lime gypsum, raw or in powder, chalk, feldspath, silica, massicot, kaolin, bone in powder and other raw materials for the manufacture of crockery.

Slates for roofing.

Roofing tiles.

Coal.

Red pitch.

Canary seed.

Seeds, shoots, and graftings of plants, and live plants.

THIRD CLASS.

Taxed at $1.25 (44 cents gold) per kilogram.

Must of barley and other materials, fermented or not, liquid or solid, for the manufacture of beer, and condensed beer.

Common red wine in casks, barrels, and demijohns.

Earthenware in pots, pans, bottles, large or small flasks (empty) destined to be used as receptacles, and, in general, common crockery.

Flasks, large and small, of common glass.

Potash, soda ashes and salts, pine resin, subcarbonates of potash and soda.

Wood in barrels, pipes, and casks, mounted or not, for dry goods or liquids;

common wooden boxes, roughly made, mounted or not, for packing; carts and wagons for the transport of goods and other similar uses.

Cotton, not manufactured.

Anchors and grapnels for small boats.

Telegraph wires for private use; tower clocks, including dials and bells.

Machines for agricultural purposes.

Presses for printers, bookbinders, and lithographers; motors of all kinds and of any power; "moditores" and large cylinders for coffee-preparing machines; plows.

Steel in bars and rods for manufacturing purposes.

Lead in ingots for mines.

Quicksilver.

Gold in bars.

Silver in bars.

Filtering stones.

FOURTH CLASS.

Taxed $2.25 (79 cents gold) per kilogram.

Garlic; flour, including sago, arrowroot, tapioca, maizena, and other similar products.

Salt codfish and meat in brine, and, in general, fish and meat not prepared.

Sugar.

Beer and other fermented beverages.

White wines, sweet and dry, in casks or barrels.

Red wine, Bordeaux, Burgundy, and Catalonia, and pharmaceutical wine of San Rafael in bottles.

Black or blue-black ink for writing.

Hemp, in the form of cordages and cables, tarred; oilcloth for roofing, for farmhouses and bridges; wool, unmanufactured.

Caoutchouc in pipes, and hose for pumps, drains, and roofs; caoutchouc, prepared for machines and flooring, excepting hose for fire engines, which pays 45 cents per kilogram (16 cents gold per 2.2046 pounds).

Earthenware in conduits, pipes, and tubes, for pumps, drains, and roofs.

Sheet glass, not silvered.

Stearin and paraffin, not manufactured.

Saltpeter.

Common resin and tallow soap.

Carbonate of calcium.

White paper, not sized, and colored for printing; blotting paper, and all other common paper for packing and wrapping, even with advertisements printed on it; emery paper.

Cardboard for printing, bookbinding, lithography, and other industrial uses.

Wood in bedsteads; large dining tables; wardrobes and large chests of drawers for clothes or other uses, without mirrors, carvings, or inlaid work; bellows for forges; buckets and tubs; taps for barrels or casks; small boards for match boxes and wood for matches; coaches and carriages of all kinds; oars; windows and doors, imported separately; machines for ships; mechanical, industrial, and agricultural machines.

Palm leaves for the manufacture of hats.

"Espadaña," straw, and common twigs, unwrought and in brooms; mats and door mats of all kinds.

Iron and steel in rails for private railways, and in bridges for private roads; balustrading for buildings, and also for doors and windows, imported separately; hydraulic pumps and machinery, with their pipes and other accessories; machines for arts, trades, and industries; machines not mentioned, the weight of which does not exceed 1,000 kilograms; tin plate; large boilers; iron pulley blocks; anvils; plates or rods not included in roughly wrought iron; beds, large chains, safes, nails, and tacks; kitchen utensils, not tinned, or only tinned on the interior; flat irons; large implements for agricultural purposes, for quarries and for mines, such as hoes and picks, levers, shovels, drill bits, large hooks (garlanchas), axes, large crowbars for mines, spades, hammers, pickaxes, drills, machetes and other knives for felling timber; machetes or hunting knives, not exceeding 20 inches in length; drills of steel for mines; tires, wheels, axles, springs, and pins for carriages and carts.

Lead, in slabs, pipes, and other articles exceeding 5 kilograms (11 pounds) in weight; also shot and accessories for printing; and in ingots, which are not destined for mines.

Zinc, unwrought, in plates and sheets, including those for roofing, and in pipes and powder.

Large and ordinary gunpowder for mines, in barrels and other recipients, the gross weight of which exceeds 2 kilograms (4.4 pounds).

Gun cotton, known as tonite, for mines.

Dynamite for mines.

Lithographic stones, whetstones, and pumice stones.

Coloring earths, for building.

Crucibles.

Tar.

Black pitch, for shipbuilding.

Tow, or rope yarn, and felt for packing purposes.

Black wax.

Guano.

Chemical fertilizers.

Hops.

Bone and horn, unwrought.

Tubes, hose, and pipes of wood, caoutchouc, earthenware, clay, or metal, for pumps, drains, and roofs, with the exception of those for fire engines.

Fuses for mines.

Slates and slate pencils.

Wadding of tow, rope, or felt, for gun cartridges.

FIFTH CLASS.

Taxed at $4.50 ($1.50 gold) per kilogram.

Hazelnuts, nuts, and almonds in the shell, and, in general, all alimentary products, not prepared, and not elsewhere mentioned.

Chocolate.

Pearl barley.

Vermicelli and other pastes.

Olives in barrels.

Olive oil; linseed oil for preparing paint.

Colored inks for writing.

Cotton in wicks for candles and matches.

Hemp, unbleached.

Caoutchouc in lids and stoppers for receptacles.

Harness for carts and carriages.

Articles of all kinds of common faïence and stoneware.

Petroleum.

Foolscap paper; books, printed.

Wood in musical instruments; organs and pianos.

Scales, balances, Roman and for weighing more than 100 kilograms (220.46 pounds).

Copper or bronze, unwrought, in bars and in ingots; in plates or sheets of whatever weight.

Tin in ingots.

Lead in capsules for recipients.

Flint stones.

Gypsum manufactured in any manner not elsewhere mentioned in the tariff.

Cork in planks or stoppers.

Apparatus for chemical laboratories and meteorological instruments.

SIXTH CLASS.

Taxed at $9 ($3.16 gold) per kilo.

Alimentary products, prepared, such as bologna sausages, salmon, ham, extract of meat, sweetmeats, confectionery, preserved and dried fruits, etc.; fruits, preserved in vinegar; and condiments of all kinds not especially mentioned.

Aniseed.

Liquids of all kinds, with the exception of perfumery and liquids especially mentioned.

Cotton in wicks for lamps and tinder boxes; bridle reins.

Hemp and flax in cordage, not otherwise mentioned in the tariff; in common cloth, prepared or varnished, for floors; common oilcloth for carriages, not including that used for table covers.

Hides, skin, and leather, unmanufactured, except patent leather.

Articles of all kinds of porcelain and of alavera.

Crystal and glass in mirrors, not exceeding 25 centimeters (9.8 inches); all other articles of glass not included in any other class of the tariff.

Spermaceti, not manufactured.

Stearin and paraffin manufactured into candles, etc.

Tallow or other candles not especially mentioned.

Alum.

Common oil soap.

Writing paper, envelopes, and all other paper not specially mentioned; stationery not specially mentioned; wall paper, and paper marbled or painted for bookbinding and other purposes.

Cardboard in articles not included in the tariff, with the exception of playing cards, which are included in class 16.

Wood in thin plates for locks; in furniture not specially mentioned in this tariff; in statues, images, and altars for churches; in harmoniums, barrel organs, and harps; in pencils for writing and for carpenters; in molds and rules for mechanical purposes; in bellows, except those for forges; in saddletrees, uncovered.

Keyboards for harmoniums.

Baskets of osiers or other vegetable material.

Iron, steel in tools for blacksmiths, stone masons, carpenters, and bricklayers; "hormas" (instruments for arts and trades); in wire for tiple cords; rings, hinges, screws, and springs for furniture; in furniture; in scales, balances, Roman, etc., for weighing 100 kilograms (220.46 pounds) and less; currycombs and brushes; cooking utensils and other articles of tin, or of iron, tinned both on the interior and exterior; knives for arts and industries, such as bookbinders' and shoemakers' knives in portable stoves.

Copper and bronze, in pans or boilers, or other articles the weight of which exceeds 25 kilograms (55 pounds).

Marble and jasper, otherwise than in tiles, slabs, and lithographic stones.

Wood matches.

Alabaster, in whatsoever form.

Glue, common.

Varnishes.

Indigo.

Paints, in powder or prepared.

Aniline.

Ordinary brushes.

Horse and boot brushes.

Steel in augers, not mentioned.

Blacking for shoes.

SEVENTH CLASS.

Taxed at $13.50 ($4.75 gold) per kilogram (2.2046 pounds).

Cinnamon.

Hemp and flax, in common, unbleached tissues, such as cretonne, crehuelas, sail, and tent canvas; domestics, with the exception of drills.

Patent leather, unmanufactured.

White, yellow, and laurel-colored wax, not manufactured.

Mineral wax and artificial beeswax.

Powders for polishing metals.

Spermaceti, manufactured into candles, etc.

Drugs and medicines of all kinds, with the exception of those mentioned in classes 2, 3, 4, and 6.

Acetic acid.

Ammonia and nitrate of ammonia.

Chlorate of potash.

Saccharine.

Cochineal.

Reuter's soap.

Peptonic wine.

Florida, Devina, and Kanaga waters.

Music paper.

Wood, in moldings, carvings, and ornaments for furniture, and frames, gilt or not, in furniture of all kinds, with mirrors, inlaid work, or upholstered with woolen or silk tissues.

EIGHTH CLASS.

Taxed at $18 ($6.33 gold) per kilogram.

Wines, not mentioned in classes 3 and 4.

Cotton, manufactured into unbleached tissues, without white or colored parts, not figured, and without needlework, in white thread.

Hemp and flax, in cretonnes, white or striped, common, in thread.

Caoutchouc, unmanufactured and in buttons not covered.

Crystal and glass in mirrors, exceeding 25 centimeters (9.8 inches).

White, yellow, and laurel-colored wax, manufactured into candles or other articles.

Blank books, ruled or not, and note books.

Pictures, maps, and engravings of all kinds, and music in manuscript or printed.

Cigarette paper and wrapping for same.

Paper entirely gilt or silvered.

Wood, in velocipedes; wooden boxes for beehives; in handles for saws; in small boxes of thin wood for drug stores; and in forms not mentioned in any other part of the tariff.

Iron and steel, in cutlery not otherwise metioned; in advertisements on tin, painted or varnished, not enameled, and manufactured in forms not designated in any other class.

Articles of copper and bronze, the weight of which exceeds 500 grams but does not surpass 25 kilograms (55 pounds).

Tin in plates and other articles.

Lead in any shape not mentioned in another class.

Zinc, manufactured into any article not mentioned in another class.

Buttons of bone, horn, and "tagua" (vegetable ivory) and composition not covered.

Combs of horn, common.

Forceps for extracting teeth.

NINTH CLASS.

Taxed at $22.50 ($7.92 gold) per kilogram (2.2046 pounds).

Cotton, fulled (fulas), blue; and tissues, white or unbleached, with white parts, plain, neither dyed nor figured, without needlework or embroidery, such as those known as "bogotanas," calicoes, "liencillos," "madapolanes," "bramantes," etc.

Wool in blankets.

Articles of copper or bronze, the weight of which does not exceed 500 grams.

Tin in powder or sheets.

TENTH CLASS.

Taxed at $27 ($9.50 gold) per kilogram.

Cotton in drills and other tissues, white or colored, not otherwise mentioned.

In shawls, with or without woolen fringes.

Hemp and flax in fine unbleached tissues, with the exception of drills and other tissues mentioned in the following categories of this tariff.

Wool in yarns.

Tissues of horsehair or other tissues not specially mentioned.

Oilcloth for furniture and table covers, not specially mentioned.

Caoutchouc in elastics for shoes.

Crystal and glass in beads, pearls, bugles, piping cords, imitation precious stones or jewels, glasses for watches and spectacles, and other similar articles.

Wax matches.

Fine gunpowder (known as "mostacilla") in cans or other receptacles, and, in general, that not comprised in any other class.

Buttons, common, of mother-of-pearl.

Straw hats, common.

Tobacco, cut or otherwise manufactured.

ELEVENTH CLASS.

Taxed at $31.50 ($11.08 gold) per kilogram.

Tea.

Cotton in counterpanes, tissues called "marcellas" and figured or damask tissues, not included in any other category; velvet, ferret, and ribbons.

Wool in carpets, rugs, and table covers.

Lead in toys, foil, and thin sheets.

Fireworks.

TWELFTH CLASS.

Taxed at $36 ($13.67 gold) per kilogram (2.2046 pounds).

Cotton in handkerchiefs, with or without common embroidery; ruanas, and cotton tissues in the piece for their manufacture.

Hemp and flax in drills, unbleached; white or colored "platillas," damasks, stuffs for tablecloths, napkins, and towels; bed covers, stuffs for mattresses, ribbons, sheeting, and other similar materials, not mentioned in another number of the tariff, provided that they be without needlework or embroidery.

Caoutchouc in boots and shoes of all kinds, life preservers, tissues for making apparel, "zamarros" and waterproof cloaks (ruanas), without wool or silk.

Wood in musical instruments not mentioned in classes 5 and 6; walking sticks without swords; umbrellas.

THIRTEENTH CLASS.

Taxed at $40.50 ($14.25 gold) per kilogram.

Cotton in stockings and other kinds of knit wear, such as undershirts, drawers, and gloves; muslins, lawns, and other transparent tissues; damasks, table covers, and hammocks; ready-made underclothing, without embroidery, lace, or other ornamentation, composed of materials subject to higher duties; in fringes, galloons, cords, braids, tassels, and other similar articles.

Wools in baize, frieze, and flannels.

FOURTEENTH CLASS.

Taxed at $56.25 ($19.80 gold) per kilogram.

Hemp and flax in handkerchiefs, caps, stockings, gloves, Brittany cloth, coquillo, long lawns, estopillas, picardias, Irish linen, labales, warandorfs, batistes, striped stuffs in imitation of cotton; fringes, galloons, shases, tapes, braids, cords, tassels, and other similar articles; ready-made clothing, without embroidery, lace, or other trimmings, composed of materials subject to higher duty.

Wool in any other form than those mentioned in any other class.

Caoutchouc manufactured in cords, bands, elastics, for hats, and in any other form not mentioned in the other classes.

Hides and skins in shoes or in form not otherwise mentioned.

Guns.

Cartridges for revolvers and firearms whose importation is not prohibited.

Knives (navajas) and scissors, fine or half fine; knives and forks, with handles of ivory, mother-of-pearl, Britannia metal, or with electroplated handles; nipples for guns; beads, gilt or silvered; pencil cases, jewelry, and all gilt or silvered articles; also those of German silver or electroplated, fine or half fine.

Plumbago and armenian paper.

Copper or bronze in jewelry, beads, galloons, spangles, wire, and similar articles; electroplated articles.

All articles not mentioned in the tariff.

Aguardiente, absinth, alcohol (absolutely pure, disinfected, etc.), bitters, brandy, champagne, cognac, liqueurs, curaçoa, chartreuse, and other pousse cafés, gin, kirsch, rum, whisky, and similar spirits.

FIFTEENTH CLASS.

Taxed at $67.50 ($23.76 gold) per kilogram.

Tobacco in cigars and cigarettes.

Saffron.

Cotton in all kinds of tissues, embroidered or with net work, and imitations thereof, including laces, insertions, and the same articles in ready-made clothing not otherwise mentioned.

Hemp and flax in tissues of all kinds, embroidered or with lace work and imitations thereof, including laces, insertions, etc., and the same tissues in ready-made clothing not otherwise mentioned.

Wool in loose woven or transparent tissues, tissues of all kinds, embroidered or with lace work and imitations thereof, including laces, insertions, etc., and ready-made clothing.

Silk threads, tissues, etc.

Hides, skins, and leather in gloves, caps, furs for trimming clothing, etc., pocketbooks, cigar cases, game bags, and other similar articles.

Small tin powder boxes and the powder puffs; dye for the hair.

Razor strops, toothbrushes, clothes brushes, etc., not mentioned in the tariff.

Straw hats, except the common ones, which are in class 10.

SIXTEENTH CLASS.

Taxed at $112.50 ($39.60 gold) per kilogram (2.2046 pounds).

Side arms, firearms, and other arms, not including sporting guns.

Brocades or other tissues, embroidered with gold, silver, or other metals; also threads, etc., of the same materials.

Articles of perfumery and for toilet, such as essences, creams, and perfumed soap.

Gold and silver in any other form than in bars and moneys.

Precious stones and playing cards.

Extract of cognac, and all condensed liquids for the manufacture of spirits.

ARTICLES FREE OF DUTY.

The following articles can be introduced by all the custom-houses of the Republic free of duty.

Articles imported for account of the Government, whatever their nature.

Personal effects of foreign ministers or diplomatic agents accredited to the Government, provided that the government to whom they belong grant the same privilege to the ministers and diplomatic agents of the Republic, and on compliance with the formalities relative to the matter.

Baggages, up to the weight of 500 kilograms (1,102 pounds), of ministers and diplomatic agents of the Republic on their return home to the country, provided always that they bring the same with them and declare on their word of honor that said baggage does not contain articles for sale.

Natural products of Venezuela, Peru, and of other countries which have granted, or which in future may grant, by treaty, the same privilege to Colombian products.

Passengers' baggage, up to the weight of 150 kilograms (330.69 pounds) per person, provided that the effects be clearly destined for their use, and that they be presented by them in person at the custom-house on entry into the country. Any excess of said weight, not accompanied by an invoice, shall be dutiable as the most highly taxed class in the tariff.

Any artisan or agriculturist coming to work in the country may, in addition to his baggage, import free of duty, up to the weight of 100 kilograms (220.46 pounds), the implements which in the opinion of the Government are necessary for his calling.

CHANGES IN MEXICAN STAMP TAXES.

Under date of May 20, 1903, Consul W. W. Canada, of Veracruz, sends copy of a recent executive decree, as follows:

ARTICLE 1. The federal contribution of 30 per cent which is payable in accordance with the stamp law of April 25, 1893, on all money that on any ground or cause is handed in to the revenue offices of the States and municipalities will, from July 1 next, be reduced to 25 per cent.

ART. 2. The amount which, according to the law of May 4, 1895, is to be distributed as a special stamp tax among the manufacturers of alcoholic beverages obtained by distillation will be *$800,000 ($306,400) instead of $500,000 ($191,500).

ART. 3. From and after July 1 last, the stamps for the tax on manufactured tobacco will be supplied at the following prices:

I. The stamps for native cigarettes and cheroots at the rate of 50 cents (19.15 cents) per 100.

II. Stamps for foreign imported cigarettes at the rate of 85 cents (32.5 cents) per 100.

III. The stamps for native cigars:

(*a*) For boxes or packages not exceeding five cigars, $1.80 (68.9 cents) per 100.

(*b*) For boxes or packages of more than five but not more than ten cigars, $3.60 ($1.38) per 100.

(*c*) For boxes or packages of more than ten but not more than twenty-five cigars, $9 ($3.45) per 100.

IV. The stamps destined for all kinds of imported foreign cigars will be double the price severally fixed in the foregoing section for native cigars.

V. The stamps for packages of 1 kilogram (2.2 pounds) net of native loose, cut, or chewing tobacco will be sold at 18 cents (6.9 cents) each, and at double that price for imported tobacco of the same kinds and weight.

VI. The stamps for packages or cases of 1 kilogram (2.2 pounds) net of native snuff will cost each 36 cents (13.8 cents) and 72 cents (27.6 cents) for packages or cases of the same weight of imported foreign snuff.

PROPOSED TARIFF CHANGES IN FRANCE.

There are now before the French Chamber of Deputies several bills involving tariff changes or the fixing of a bounty upon certain products which may exert an indirect influence on like American products. These bills will in all probability become laws at the present session of Parliament. According to the custom in French legislation, the authors of these measures publish in connection with them the arguments upon which they are based, from which I condense briefly:

HEMP AND FLAX.

The bounty on these products ($14.20 per hectare, or 2.471 acres, in 1902) has so increased domestic production that it is now proposed to make the protection permanent. They produce in France about 1,980 pounds of hemp to the hectare. The average price of hemp during the year 1901, according to official statistics, was $17.75 per 100 kilograms (220 pounds). The bounty represents an ad valorem duty of about 9 per cent.

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*The Mexican peso, or dollar, on April 1, 1903, was valued at 38.3 cents.

Flax, cultivated under the same conditions, averages 1,540 pounds to the hectare. The bounty of $14.10 per 100 kilograms is considered equivalent to a duty of about $2 to the 100 kilograms, or 6 per cent. The average price of flax for 1901 was $22.20 per 100 kilograms.

The supporters of the proposition argue that the bounty requested is very small compared with the protection accorded other agricultural products. The customs duty of $1.40 per 100 kilograms on wheat, they state, is equivalent to a bounty of 35 per cent ad valorem. The duty on wine (considered in its relation to the cheap wines of southern France) represents a protective tariff of 40 per cent ad valorem. Sericulture receives as a bounty 60 centimes (12 cents) per kilogram (2.2 pounds) of fresh cocoons, which are worth about 50 cents—a protection of 16 per cent ad valorem.

In 1901, 63,761.8 metric tons of flax, combed and separated, were imported into France, at a total value of $12,901,546.60, and 20,216 metric tons of hemp, valued at $3,827,780.40. It is therefore a sum of from $16,000,000 to $17,000,000 that France pays to foreigners for flax and hemp. Nearly all of this money goes to Italy, Germany, and Russia; 18,272.8 metric tons were imported from Germany and Italy.

HOPS.

Another measure calls for protection for the hop industry. This industry, it is stated, is carried on at a loss. The cost of labor per hectare (2.471 acres) is estimated at from $360 to $380, according to fertility of land. The average yield is 2,640 pounds per hectare, the cost price of which varies from $30 to $31 per 220 pounds; the average selling price is from $28 to $30 per 220 pounds. As it requires only about 6.5 ounces of hops for 1 hectoliter (26 gallons) of beer, the proposed protection of $20 per 100 kilograms (220 pounds) of hops would add but from 2 to 2.5 cents to the cost of 1 hectoliter of beer. It is asked that the duty be raised to $20.30 and $17.40 per 100 kilograms, as a general and minimum tariff.

CITRATE OF LIME.

A customs commission proposes the removal of the duty from citrate of lime. Up to the present time, citric acid has been made entirely from concentrated lemon juice, coming principally from

Sicily. It is used by confectioners in making sirups, grenadines, and other beverages and, in industry, in printing cotton goods. The commission adds:

> Within a few years, the Sicilian producers have improved their methods and now transform raw lemon juice into citrate of lime without concentrating it, thus realizing a notable economy in labor and coal. The article at present pays a duty in France of $2 per 220 pounds. As our competitors receive this article duty free, our producers are under great disadvantages compared with them. France annually consumes about 300 tons of citric acid and exports about double that quantity.

JOHN C. COVERT,
Consul.

LYONS, *May 26, 1903.*

PROPOSED GERMAN TARIFF ON MACHINERY.

The following has been received from Consul J. F. Monaghan, of Chemnitz:

As always happens in a country when the revision of its tariff has been consummated, all parties are not content and strong opposition develops. Chemnitz papers, assuming spokesmanship for the great machine interests of the city, express dissatisfaction with the duty upon machinery. It is contended that not only is the new tariff entirely out of keeping with the high duties imposed upon machinery by other countries, but it also fails to maintain a proper relation between the duty upon the raw materials used by machine builders and that upon the finished machines.

As to the comparative amount of protection offered by the German tariff and that of other nations with which the German Empire enjoys a good export trade in machinery, it is demonstrated that while the new German tariff incorporates a duty of from 3 to 5 per cent, and, in some cases, even as low as 1½ per cent, the American duty averages 45 per cent, while Austria recently raised her duty about 20 per cent, and with certain classes of machinery more than tripled it. Russia, also, has almost doubled her duty on machinery.

The comparative lowness of the German tariff is considered a most serious menace to the machine-building industry of the country. It is urged that the present tariff be amended so as to provide the country with an effective weapon for the conclusion of reciprocity treaties with other nations. The new Austrian tariff, it is believed, will seriously injure the export trade of Germany to that country, which, in 1901, amounted to the considerable sum of $4,300,000 for machinery and parts of machines. Austria, it is reasoned, has put on her armor in anticipation of commercial wars.

How far these sentiments find support at Berlin is unknown; but since the publication of the new tariff in its final form, criticisms seem to have been strengthening, so that the possibility of more material influence leading to a revision of the present machine duties is by no means precluded.

NEW TREATMENT FOR TUBERCULOSIS.

At the last meeting of the Medical Society of Berlin, at which were present many of the most eminent medical scientists of Germany, there was presented by Dr. Danelius and Prof. Theodor Sommerfeld an elaborate thesis describing their experiments with a new system of treatment for tubercular disease by inhalation, or rather fumigation, with the combined fumes of eucalyptus, sulphur, and charcoal. These experiments have been a subject of keen and sustained interest among the foremost medical men of Berlin during the past six months. The high authority of the tests which have been made, the encouraging nature of the results reported, and the fact that these results may constitute an important step toward the scientific mastery of a disease which has become one of the most widespread and fatal scourges of the human race, give to the proceedings of last night a popular interest which transcends all the ordinary limits of pathological discussion. Concisely stated, the history and nature of the new method are the following:

During his extensive travels in Australia Mr. Robert Schneider, a German merchant, with a practical knowledge of chemistry, noticed that the natives in the northwestern part of Australia used a decoction made by boiling the leaves and roots of the eucalyptus tree as a remedy for consumption, which is a prevalent disease in many sections of that country. He further observed that the natives living in districts where the eucalyptus tree grew abundantly were generally immune from the disease, and that natives suffering from tuberculosis frequently came from other regions to live in the eucalyptus district, and with generally favorable results. From all that he could observe and learn by inquiry, Herr Schneider concluded that the effective remedial agent was the eucalyptus, which is known in materia medica as a germicide and antiseptic of recognized efficiency.

With the aid of a physiological chemist, he prepared a combination of flowers of sulphur, powdered charcoal, and the pulverized eucalyptus leaves, impregnated with essential oil of eucalyptus. This mixture has been named "sanosin," and is the material which has been used in the recent experiments. Since the time of Galen the fumes of sulphur have been known to exert a curative effect upon sufferers from phthisis, and it appears that the combination of sulphurous acid with eucalyptus and carbon has a peculiarly effective potency in attacking the bacillus of tuberculosis. On account of its extreme volatility, sanosin is put up in sealed glass tubes, each containing a dose of about 2 grams (31 grains), in which condition it is to be sold, like other medicines, through authorized druggists. When used, the tube is broken and its contents poured on an earthenware plate heated by a spirit lamp; the volatile eucalyptus quickly evaporates, and, in combination with the small quantity of sulphurous-acid fumes generated, medicates with an aromatic, penetrating odor the air of a closed room, in which the tuberculous patient lives and inhales the curative influence in an easy, natural way.

The new remedy was brought to Berlin in September of last year, where, after due consideration, it was taken in hand for elaborate scientific test and practical experiment. Prof. Theodor Sommerfeld, of the University of Berlin—a leading authority in pulmonary disease—and Dr. Danelius, also a lung specialist, took charge of the experiments and a special clinic or hospital ward was opened for that purpose in the Moabit quarter. Other physicians were assigned to the various details of the work. One made regular and frequent examinations of the sputa of the patients under treatment, keeping careful record of the changes in each case from day to day; another made daily inspections of their general condition, temperature, pulse, appetite, etc., so that the collective record in each individual case is the work of several different expert physicians. The patients were taken from the poorest class of sufferers, many of whom live at Berlin in damp, unsanitary dwellings, and throng the public hospitals at all seasons of the year. So prevalent and fatal is tubercular disease among this class that notwithstanding all that science has hitherto done to restrain its ravages, the death rate in Berlin alone from that disease averages ten per day. Each patient, before being admitted to the new treatment, was required to present a certificate from the Royal Hospital showing that he or she had been treated there and was suffering from progressive tuberculosis; many when admitted had reached a stage at which hope of relief by ordinary means had been practically abandoned. Thus far 120 patients have been treated, of whom it is stated more than 50 per cent have been discharged as cured. Some have been enabled, while under treatment and sleeping in the hospital at night, to spend portions of the day engaged at their usual occupations. The purpose of the meeting last evening was, first, to listen to formal theses prepared and read by Dr. Danelius and Professor Sommerfeld, describing the process of treatment and giving the detailed records of a number of typical cases, and, secondly, to present in person, for examination by the assembled physicians, several of the patients who had been previously treated for tubercular disease by one or more of the physicians present; had received certificates from them on entering the eucalyptus clinic; and were now presented for examination as cured.

It is not within the province or purpose of this report to venture any opinion as to the effectiveness or permanent value of this new remedy. So many sensational cures have been announced in recent years for phthisis, cancer, and other widespread human diseases that the average layman is constrained to receive the announcement of further discoveries in the same field with a certain incredulity. At the same time it must be conceded that, in view of the dominating importance of the subject, the record of what sanosin has thus far accomplished is entitled to a more than mere passing recognition. The period of experiment is of course too brief to form the basis of any definite conclusion. There is a general unwillingness among physicians to accept the arrest of tubercular disease for so short a period as six months as proof of a permanent cure. Others doubt whether any process of inhalation alone can reach the ultimate seat of the disease. It will probably be safe to accept for the present the conservative but positive statement of Dr. Engel, the expert charged during the recent experiments with the examination of the sputum, in which he has had a long experience under other forms of treatment. His statement is that under no other treatment has he seen the character of the sputum change so rapidly and uniformly, through the diminution and disappearance of bacilli and the elastic fibers peculiar to tubercular disease, as under the treatment with sanosin.

To which may be added the deliberate testimony of Dr. Danelius and Professor Sommerfeld that—

> The inhalations act with greater certainty in removing the catarrh which accompanies pulmonary phthisis than any other medicinal or physical measures directed to the same end. This is shown especially by the fact that the expectoration on the one hand decreases or disappears entirely, or, on the other hand—in acute cases—changes its character. The fact that the patient generally is quickly relieved from the troublesome and irritating cough is of the greatest importance, especially as the sleep which is absolutely requisite for a recovery from fundamental disease can then be obtained. The appetite in almost every case increases under the influence of the inhaled vapors, and through an increased consumption of food the second preliminary condition for the cure is furnished.

FRANK H. MASON,
Consul-General.

BERLIN, *May 14, 1903.*

THE CHEMICAL INDUSTRY IN GERMANY.

The object of this report is to show the commercial importance of this great industry to the German Empire, the source whence the materials are drawn, the extent of the production and consumption at home, as well as the trade in chemicals with other countries. The following table is for the year 1898:

District.	Establishments.	Workmen employed.	Wages paid.	Average yearly wages per capita.
	Number.	*Number.*		
Berlin	1,202	18,115	$3,978,639	$219.13
Hamburg	921	20,856	2,980,150	143.32
Frankfort	446	15,929	3,177,190	198.80
Mannheim	627	19,873	4,672,418	235.12
Leipzig	1,191	21,787	4,707,436	211.00
Cologne	958	23,191	5,760,983	248.41
Breslau	657	8,165	1,353,425	153.00
Nuremberg	587	7,434	1,232,637	165.80
Total	6,589	135,350	27,862,878	1,574.58

The statistics* for the year 1901 placed the number of establishments at 10,385, which gave employment to some 150,000 workmen. It will be noticed that the highest rate of wages is paid in Cologne and Mannheim and the lowest rate in Hamburg and Breslau. The gradual increase in the number of establishments, workmen, total wages, and average per capita is shown in the following table:

Year.	Establishments.	Workmen.	Total wages.	Average.
	Number.	*Number.*		
1894	5,758	110,348	$23,471,918	$200.63
1895	5,947	114,581	24,615,026	212.77
1896	6,144	124,219	27,067,187	218.00
1897	6,316	129,827	28,777,155	219.43
1898	6,589	135,350	30,853,892	225.62
1901	10,385	150,000	(*)	(*)

* No returns.

CHEMICAL SUBSTANCES.

Among substances necessary to the chemical industry are bromine, iodine, chloroform, phosphorus, and sulphur. Bromine is found in sea water and saline springs. A certain silver ore in Chile also contains large quantities of it. Chile is also the home of iodine. This product is secured from the ashes of seaweed, especially that which abounds on the coasts of Japan, France, Scotland, and Norway. From 1895 to 1900, Germany imported 800,000 tons of chloroform for use in her chemical industries. Red phosphorus is used principally in the preparation of matches and rat and mouse poison. Sicily is the home of sulphur. In 1897 the island exported 360,000 tons of sulphur to foreign countries—123,000 tons going to the United States, 89,000 tons to France, 26,000 tons to England, and 23,000 tons to Germany.

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* Statistisches Jahrbuch für das Deutsche Reich.

SALTS.

The number of factories engaged in making mineral and saline salt in Germany is 97. The total output in 1899 amounted to 1,432 tons, valued at $3,684,200. The imports in 1900 were valued at $119,000 and the exports at $571,200. The annual consumption of salt by the German people is about 1,218 tons. Fully 80 per cent of the imported salt comes from England, and the rest chiefly from Portugal; while British India, Holland, and Belgium are the principal countries to which salt is exported. The German States which produce mineral salt are Anhalt, Thuringia, Posen, Hanover, Westphalia, and Bavaria and the Province of Saxony. The most formidable competitor of the German salt industries is found in those of Wieliczka in Galicia.

Potassic salts.—In the manufacture of potassic salts, Germany has almost a world monopoly. The seats of production are in Hanover, Brunswick, Thuringia, and the Province of Saxony. Fully 50 per cent of the total output finds its way into foreign countries. Nothing produces a better manure for beet-sugar plants, potatoes, and tobacco than chlorate of potash. A powerful syndicate has control of the most important of these works in Germany, which demands high prices from foreign countries, while keeping the rates at home within reasonable limits.

Potash.—The annual exports from Germany amount to about $1,250,000. About $100,000 worth is imported each year from Austria-Hungary. Potash is used especially in the production of soap and glass. In 1900, 4,495 tons were exported to the United States.

Nitrate of potash).—This is manufactured in large quantities in Germany for the purpose of producing gunpowder. It is further used in glass and metal factories and in pickling meat. In 1900 the total exports from Germany were 14,744 tons, valued at $1,332,000. Some 4,884 tons were imported from Great Britain.

Chloride of magnesium.—This serves the purpose of smoothing cotton yarn before it is woven in order that the strings may retain a certain degree of dampness. The residue from the manufacture of this substance is allowed, for the most part, to run into the River Elbe and greatly discolors the water. In 1900, 13,375 tons of chloride of magnesium, valued at $126,140, were exported, 50 per cent going to Great Britain.

Nitrate of soda.—This is a product of Chile and Peru. In 1900 Germany imported 484,544 tons, fully two-thirds of which was applied as manure to farms. The Empire's annual consumption of this product amounts to $18,000,000. There are to-day two processes principally in use in the production of soda—namely, that of Leblanc, discovered in 1791, and that of Solvay, introduced in 1866.

In 1894 the world's production of soda was estimated at 1,232,000 tons, divided among the different countries, as follows:

Country.	Leblanc process.	Solvay process.
	Tons.	*Tons.*
England	340,000	181,000
Germany	40,000	210,000
France	20,000	150,000
United States	20,000	80,000
Austria-Hungary	20,000	75,000
Russia	10,000	50,000
Belgium	6,000	30,000
Total	456,000	776,000

It will be noticed that England produces vastly greater quantities of soda, according to the Leblanc process, than all the other countries put together. Most of the English factories have been consolidated under the name of the United Alkali Company, Limited, with a capital of $50,000,000.

Caustic potash.—This product is produced principally by means of electrolysis. It is a specialty of the Elektron Chemical Works, situated at Griessheim, near Frankfort. In the spring of 1901 these great chemical works were almost totally destroyed by fire, which was attended by great loss of life. They have since been rebuilt or are in process of construction. In 1900 the total exports amounted to 15,379 tons, valued at $1,475,600.

Caustic soda.—This chemical is gaining ground every year as an indispensable article in paper mills and textile factories. An electrical process with the application of quicksilver is used in the preparation of this product in the Solvay factories of Germany. This chemical is also produced to some extent in England, Belgium, and Russia. The export of caustic soda from Germany amounts to little or nothing. In order to satisfy the home markets, 1,288 tons were imported from England in 1900.

Chloride of lime and bleaching powder.—Germany exported 25,954 tons of these products, valued at $642,600, in 1900. Chloride of lime is manufactured in Germany chiefly by the Leblanc process. The Elektron factories in Griessheim produce immense quantities of it through the application of electricity. The article is used to a great extent in the textile factories and paper mills of all countries.

Sulphuric acid ammonia.—This is secured chiefly from the dry distillation of coal. Germany obtains 15,000 tons every year from gas works and about 100,000 tons from various smelting works. In 1898 England secured 223,000 tons from the same sources and from factories which manufactured bituminous slate. In addition to what she produces at home, Germany is forced to import large quantities of ammonia, largely for manuring purposes, which in 1900 amounted to 23,105 tons, valued at $1,094,800. Great Britain furnished 80 per cent of the imports.

Sulphate of barium.—Nearly 1,100 tons of this product went from Germany to the United States in 1900, and the manufacture is steadily on the increase.

Alum.—The exports from Germany in 1900 amounted to 29,372 tons, valued at $668,000. Some 3,000 tons were shipped to the United States.

Blue vitriol.—Until 1894 the United States exported no copper vitriol to Germany. In that year the statistics show that 193 tons were sent, and this increased to 1,287 tons in 1900. The copper-mining industry in the United States will have a great market in the chemical factories of Germany.

ACIDS.

Formerly, the Leblanc was the only process used in the acid and alkali industry of Germany. The introduction of the Solvay process has created many side issues. The Leblanc method is still used chiefly in the preparation of caustic soda and caustic potash from the potassium chloride of Stassfort. The hydrochloric acid secured by this process is absolutely necessary to the dyestuff industry in Germany. Independent of these uses, however, the chemical-salt-producing industries of Germany are founded on the Solvay system. The chief seat of the sulphuric industry is the Badische Aniline and Soda Factory, in Ludwigshaven-on-the-Rhine. Immense quantities of sulphuric acid are produced by the union of sulphurous acid with oxygen.

Sulphuric acid.—In 1878 Europe produced about 1,000,000 tons of sulphuric acid. Of this, England's share was 600,000 tons; France's, 200,000 tons; Germany's, 112,000 tons; and Austria-Hungary's, 45,000 tons. In 1898 Germany produced 846,000 tons from about 70 works, more than two-thirds being secured from Spanish gravel and pebbles. In 1897 about 1,000,000 tons were manufactured in the United States and 200,000 tons in Russia. Sulphuric acid is one of the most important materials used in the whole chemical industry. It is employed in the production of Leblanc soda, sulphate, and chloride and in dyeing. The greater part of the sulphuric acid produced never reaches the market, for the reason that it is at once utilized by the producing factories for other manufacturing purposes. Sulphuric acid is produced from the smelting of sulphuric ore, sulphur gravel, and copper gravel. The great increase in the German production is due to the fact that the iron industries have been forced by the Government to prevent the escape of injurious acids and gases from the smokestacks of their forges and smelting works, as they proved ruinous to vegetation.

Carbolic acid.—In 1900 Germany imported 4,225 tons, valued at $500,000; about 80 per cent came from Great Britain. The exports amounted to 2,452 tons, of which 274 tons went to the United States.

Carbonic acid.—This is produced in Germany from natural springs. It is used especially in the preparation of beer and of late years in connection with the bottling of certain wines. Germany exports about 4,000 tons annually, chiefly to Holland and Belgium.

Boric acid.—This is found in California, Tuscany, Asia Minor, and Chile. Its prominent use in Germany is in connection with the glass and porcelain industries.

OXIDES.

White arsenic.—This is obtained by heating arsenic pebbles, which are secured in large quantities in England, Prussia, and Saxony. Arsenic is used in Germany in the organic-dyeing industries in the production of certain colored paints and for the extermination of vermin. It is also used to some extent as a medicament.

Copper colors.—The so-called Schweinfurt green belongs to this class. It is one of the most destructive poisons known, and its use is forbidden in Germany on this account. It is manufactured, however, for export, Russia and China buying large quantities.

Ultramarine.—This was first used about one hundred years ago in France and Germany. It is a coloring material which is affected but little by light, air, and water, but easily fades in acid. This industry in Germany was once very prosperous, but owing to overproduction, foreign tariffs, and competition it passed through a severe crisis about fifteen years ago, in which most of the factories were compelled to close down. Those which were able to survive have since been consolidated into a stock company, which is known to-day as the Vereinigte Ultramarine Gesellschaft.

LEAD PENCILS, CRAYON, AND INK.

There are 227 factories in Germany which manufacture lead pencils. They give employment to 2,813 persons. In 1900 Germany exported 1,614 tons of lead pencils, worth more than $2,000,000. The largest quantities went to Great Britain, Russia, Japan, and the United States. Some 53 factories also manufacture crayon.

German exports of ink amounted in 1900 to 738 tons, valued at $150,000—Holland and Russia being the best customers. During the same year large quantities of printers' ink were exported to Belgium, England, Holland, Austria-Hungary, and Switzerland.

DYEWOOD.

Blue wood.—The import of blue dyewood into Germany is on the decrease. This is due to the fact that all natural organic coloring matter is gradually giving way to artificial coloring matter. The import of dyewood material in 1900 amounted to 36,868 tons, valued at nearly $1,000,000; it came from Mexico, Haiti, British West Indies, Dominican Republic, and the United States. In former years, dyewood reached Germany by the way of England, Holland, and Belgium. To-day German ships carry the entire trade.

Yellowwood.—This is imported into Germany from Austria-Hungary, Mexico, and South America. It is used in coloring wool and in the preparation of mixed colors. Owing to other plants and artificial methods being used as substitutes, the imports are growing less each year. The imports in 1900 amounted to 1,919 tons, or fully 5,000 tons less than in 1890.

Redwood.—Germany imports this wood from British India, Mexico, and the west coast of Africa. Indian redwood has for ages been used by the Arabs as sandals. The industry in Germany to-day is insignificant. In 1889 the imports amounted to 8,309 tons, while in 1900 they had decreased to 2,000 tons.

NATURAL COLORING MATERIALS.

Madder.—Some years ago, madder was the most important material used in the red-coloring industries. This plant once flourished in Avignon, Alsace, and Holland. In former years it was also cultivated to quite an extent in Germany. During the past thirty years, however, its culture has become almost extinct.

Indigo.—This is perhaps the oldest and best-known coloring material, as well as the most important derived from plants. More than three-fourths of the raw material comes from India. In 1897 the Badische Anilin und Sodafabrik began the manufacture of artificial indigo, which is to be found on the market to-day in large quantities. The competition between Indian indigo and that artificially produced is keen. It is probable that the increased cultivation of the plant in British India and the Dutch East Indies, together with cheap labor and low freights, will enable natural indigo to hold its own in the markets of the world. Germany imported 564 tons of indigo plant in 1900, valued at $1,000,000.

Cochineal.—This is imported into Germany chiefly from Mexico. Owing to the overwhelming competition of artificial coloring material, the imports have been reduced to practically nothing. The statistics for 1900 show only 59 tons, valued at $30,000.

ARTIFICIAL COLORING MATERIALS.

Alizarin.—Successful experiments in producing artificial alizarin from anthracene were made in 1869. Chemical factories soon accommodated themselves to the new method, and the madder industry, whence this coloring stuff had hitherto been drawn, was completely ruined.

Aniline.—Aniline colors are produced from aniline oil and aniline salt. The aniline-dyeing industry is a product of the nineteenth century, and many great names are connected with its development. The discoveries of Runge, Hofmann, Perkin, Verguin, Baeyer, and Fischer have enabled this industry to become what it is to-day. In the manufacture of aniline, Germany holds a commanding position. Raw materials, such as coal tar and aniline oil, are imported from England. Under the guidance of Germany's excellent chemists, these are changed into manufactured products, and their former value is increased fiftyfold. Nearly every country in the world is dependent upon Germany for aniline colors.

TANNING MATERIALS DERIVED FROM PLANTS.

FRUITS.

Myrobolans.—In 1900, nearly 13,000 tons of this fruit were imported from India, which marks an increase of about 400 per cent since 1890. German ships carry the entire trade. The acid secured from the fruit is applied to bark in the tanning factories.

Gallnuts.—These are imported into Germany from Asia Minor, China, and Japan. The annual imports amount to about 3,000 tons, valued at $1,000,000.

BARK, LEAVES, AND TWIGS.

Bark.—The annual imports for the tanning industries of Germany amount to about 110,000 tons, valued at $2,500,000; France, Holland, and Belgium supplying the greater part. In addition to bark, certain woods are imported from Argentina.

Sumach.—This is imported into Germany from Italy and Austria-Hungary. Owing to its greater utility in the preparation of leather, oak bark is gradually supplanting sumach in the tanning industries of Germany. Nevertheless, about 5,000 tons are still imported every year.

EXTRACTS.

Germany is almost entirely dependent upon foreign countries for the raw materials for tanning. The bark produced by the oak forests on the Moselle and in other parts of the Empire can scarcely be considered. In 1900 there were imported 21,000 tons of extracts of various kinds.

Tannic acid.—This is used to some extent in the tan works, but the textile industries of the Empire consume large quantities for coloring purposes.

DRUGS.

The drug trade in Germany is in a flourishing condition. The imports have advanced with the demands of the home industries and the growth of the population. Germany exports each year about 3,000 tons of drugs, worth $4,000,000, and imports about half this amount. Great Britain and the United States are in this line, as in a great many others, Germany's best customers. The principal items in the trade are opium, licorice juice, rhubarb roots, dried wormwood, and cantharides.

Antipyrine, antifebrine, and quinine are products which enter in considerable quantities into the foreign commerce of Germany. The high tariff impedes the import of quinine, and France has succeeded in becoming a competitor of Germany in this industry. Tariff wars in Europe have been more or less detrimental to this trade. In 1900, German exports of this kind of medicaments amounted in round numbers to 400 tons.

MISCELLANEOUS.

Germany carries on an extensive trade in other articles which are akin to, or play an important part in, the production of chemicals. The following table, with statistics for the year 1900, explains itself:

Article.	Imports.	Exports.
	Tons.	*Tons.*
Rosin and asphalt	80,765	36,921
Tar	35,554	32,437
Pitch	55,415	4,350
Turpentine, raw	102,454	22,892
Turpentine oil	28,130	1,647
Gum arabic	3,888	1,283
Balsam (various kinds)	178	111
Camphor	1,048	365
Varnish	900	1,504

The total imports of the above may be estimated in round numbers at 286,345 tons, valued at $9,377,200. The exports amounted to 99,652 tons, valued at $2,808,400.

LEADING CHEMICAL FACTORIES.

Among the leading chemical factories in Germany are the following.

Badische Aniline and Soda Factory in Ludwigshaven-on-the-Rhine.—This factory was established in 1865 and employs 6,000 workmen and 300 officials. It has branch establishments in France and Russia. The chief articles of manufacture are artificial dyestuffs, aniline, and aniline oil and salts. Indigo is produced on a large scale by synthetic processes. It also manufactures alizarin colors and strong sulphuric acids.

Farbenfabrik, formerly F. Bayer & Co., Elberfeld.—This has branch establishments in different cities of Germany and one in Moscow. It has a capital of $3,000,000 in bonds and $2,000,000 in securities. It employs 5,200 workmen, 27 engineers, 148 technical advisers, 520 mercantile clerks, and 145 trained chemists. The chief products of manufacture are drugs and aniline and alizarin colors.

Farbwerke, formerly Meister, Lucius & Brüning, Höchst-on-the-Main.—This was established in 1862 and has a working capital to-day of nearly $5,000,000. Fully 5,000 people are employed in manufacturing tar colors, indigo, and all kinds of pharmaceutical powders.

Chemische Fabrik, formerly Hell & Sthamer, Hamburg.—This was founded in 1846; it manufactures every year 10,000 tons of potash and soda saltpeter, 9,000 tons of crude kitchen salt, 4,000 tons of borax, and 1,000 tons of boric acid.

No fewer than 77 German chemical factories exhibited their products at the world's fair at Paris in 1900. Twenty companies and individual firms which manufacture machinery and fittings for chemical laboratories were also represented.

CHEMICAL LITERATURE.

For those who wish to make a thorough study of the German chemical industry, I would recommend the following books:

1. Die chemische Industrie des Deutschen Reichs; O. N. Witt, Gärtner's Verlag, Schöneberger Strasse 26, Berlin, NW.
2. Chemische Industrie; a semimonthly magazine published by the above-named firm.
3. Zeitschrift für angewandte Chemie; a semimonthly magazine published by J. Springer, Berlin.
4. Sammelausstellung der Deutsch. Chem. Industrie in Paris, 1900; Verlag, H. Feyl & Co., Berlin.

GERMAN VS. AMERICAN CHEMICAL INDUSTRIES.

The German chemical industry, like the textile industry, is absolutely dependent upon the unrestricted importation of raw materials and the exportation of products manufactured therefrom.

Germany exports about $14,000,000 worth of chemicals, colors, dyes, and drugs to the United States every year. The above description will show the importance of this industry to a great class of the German people. The time has arrived for us to put forth every effort to develop our own chemical industry, so that we shall become practically independent of German imports. The workmen in the German chemical factories earn good wages. The industries, on the whole, are prosperous, many companies paying 10 and 12 per cent dividends. In spite of the secrets used in the German industry, especially in aniline colors, which are transmitted from generation to generation, our tariff has forced many German manufacturers to establish branches in the United States in order to keep a grip on their trade. The raw materials necessary can be procured as well by us as by Germany. Our universities are taking more interest in the subject every year. The chemical industries of the United States ought soon to be able to compete successfully with those of Germany in the markets of the world.

ERNEST L. HARRIS,
Commercial Agent.

EIBENSTOCK, *May 27, 1903.*

NEW MICROSCOPE IN GERMANY.

The following has been received from Consul J. F. Monaghan, of Chemnitz:

A discovery which may have far-reaching results in the field of scientific investigation and do much toward the further solution of the problem of the molecular construction of matter was recently made by two professors of Jena University—H. Siedentopf and R. Zsigmondy. They have discovered a new method of microscopic observation, whereby ultramicroscopic particles are not only made visible, but can also be studied with a view of determining their size. A full description was recently published by the inventors in the German scientific journal Annalen der Physik (volume 10, 1903), and reprints of the same are to be had by interested parties by addressing the above-named professors.

The method consists mainly in a powerful artificial illumination of the particles to be observed. These particles, because of their minuteness, exert no material influence upon the vibratory period of the light waves, and hence appear to the observer as self-illuminating, or luminous objects, by virtue of their reflected light. Since, however, the reflected light is weaker than the original illuminating beam, it is necessary, in order to secure the advantages of an intensified illumination of the particles, to employ the principle of dark-field illumination.

Heretofore, the great imperfection in the method of dark-field illumination has been the failure to eliminate all light reflected from the surfaces of the condensing lens and the microscopic objective. Whenever any of the light of the stronger illuminatory ray mingles with the weaker light reflected from the particle which is being observed, the visibility of that particle is proportionately blurred, just as the light of the rising sun gradually obscures a morning moon. Perfection in dark-field illumination has been attained when none of the light of the illuminatory ray enters the line of vision in the observation of an object through the microscopic objective, and the object is visible solely by virtue of its own reflected light.

This interference of the direct light of the illuminatory ray or of its reflected light from the surfaces of the condensing lens, with the reflected light of the object under observation, is overcome through the application of the principle that when the illuminatory ray is perpendicular to the axis of the microscopic objective any direct light or any light reflected from the surfaces of the condensing lens can no longer enter the line of vision of the observer, and hence can no longer interfere with the reflected light of the particle to be observed; provided that the condensing lens for the illumination of the object and the microscopic objective for the observation of the object are so adjusted as to meet at a common focus (*A*, fig. 1). It will be seen that with this construction no light reflected from the condensing lens (*B*), or passing through it directly, can possibly enter the microscopic objective (*C*), thereby permitting the observer of the particle located at *A* to view the same solely by virtue of its own reflected light. This method of dark-field illumination enables the employment of the most powerful sources of illumination for microscopic observation, and for this reason must be considered as a marked advance in the technique of this field.

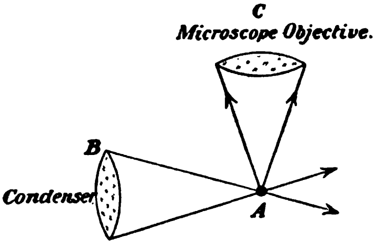

FIG. 1.

The principle involved in this new method is well illustrated by the common phenomena of the "visible sunbeam" in a darkened room which is penetrated by a ray of light. Dust particles in the path of the ray, hitherto invisible, become visible when the eye of the observer is at right angles to the direction of the penetrating ray. If, now, the illumination is strengthened through the employment of a more powerful source of light and a condensing lens, and the power of the eye is strengthened by means of a microscopic objective, we have all the essentials of the new method of dark-field illumination as employed by the two Jena professors for rendering visible ultramicroscopic particles.

The figure given below represents an outline drawing of the new illuminating apparatus, reduced to one-tenth of its actual size. It is constructed as follows: By means of a clock heliostat, a ray of light is sent through an iris screen into the dark observation chamber within which the apparatus is placed. The various individual movable parts of the instrument are carefully and accurately mounted upon a metal slide (*P*) by means of delicately adjustable riders. The beam of light cast into the dark chamber by the heliostat first strikes the telescopic objective (F_1). This lens has a diameter of 100 millimeters (3.94 inches) and condenses the ray so that it measures but 1 millimeter (0.03937 inch) on striking the apparatus *S*, which contains an accurately adjustable slit. The size of this slit may be varied, at pleasure, from 5 millimeters (0.19685 inch) to 0.5 millimeter (0.01968 inch) in width (horizontal dimension), and from 0.1 to 2 millimeters (0.00398 to 0.07874 inch) in height (vertical dimension). By virtue of this adjustable slit, the beam of light is made to lie flat, its greatest dimension being horizontal. Behind the adjustable slit a polarizer (*N*) may be placed, if necessary. The iris screen (*J*) serves to cut off all light that may arise through reflection from the sides of the adjustable slit (*S*). Another screen (*B*) serves to cut off the lower half of the beam, in case an immersion lens is used in the microscope, so as to prevent the intrusion of injurious reflections that may arise in this case. A second telescopic

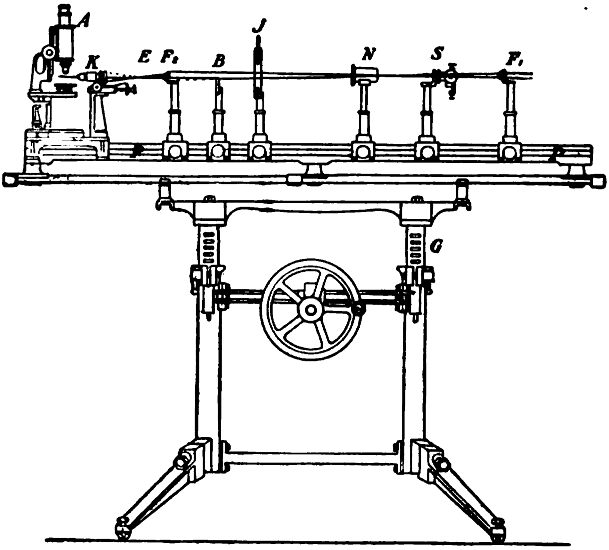

FIG. 2.

objective (F_2), of a diameter of 80 millimeters (3.15 inches), reduces the size of the flattened beam by one-fourth. This reduced beam is again reduced to one-ninth its size by the microscopic lens in the condenser (*K*), and in that form strikes the object which is being observed through the microscope (*A*). In order that the flattened and reduced ray may come to a focus in line with the axis of the examining microscope, the condenser (*K*) is fitted with sensitive micrometer screws, working at right angles to each other.

By means of this apparatus, the Jena professors have seemingly accomplished what the great Helmholz did not conceive as possible. This physicist declared the limit of microscopic perception to be 0.0001 millimeter,* while it is estimated that this limit has been extended to from 0.000004 to 0.000007 millimeter. That such an achievement promises great things in scientific investigation is readily seen.

GERMAN INQUIRY FOR FURNITURE AND DRY GOODS.

Consul T. J. Albert, of Brunswick, reports that an inquiry has been made for the names and addresses of prominent firms in the United States engaged in the manufacture of small decorative furniture, for the purpose of introducing their products into Germany. Not only furniture manufactured from different kinds of wood is desired, but furniture made of bamboo and rattan. There is also an inquiry for the names of American firms manufacturing colored cotton goods, madras, etc. Catalogues and samples of such goods would be gladly received. A price list is inclosed, showing the different kinds of furniture wanted, together with the prices prevailing in Germany,† which will be a guide for firms who propose to make offers. American manufacturers can communicate with the consulate or directly with the firm of Carl Langerfeldt, Brunswick, Germany. The following is taken from the price list:

Description.	Price.	
Folding furniture for verandas, balconies, gardens, and dwellings (light weight and solid construction), Pompeian red, green, and natural:	*Marks.*	
Armchair	6.00	$1.43
Bench, 45.3 inches long	10.00	2.38
Table—		
39.3 by 23.6 inches	10.00	2.38
Round, 21.6 inches in diameter	6.00	1.43

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* 1 millimeter=0.03937 inch.

† Filed for reference in the Bureau of Statistics.

Description.	Price.	
Bent wood, reseda or red lacquered:	*Marks.*	
Chair	3.75	$0.89
Armchair	5.50	1.31
Sofa	11.00	2.62
Table	8.50	2.02
Bent reed, natural:		
Chair	14.00	3.33
Armchair	21.00	5.00
Sofa	36.00	8.57
Table	17.50	4.17
Oak hall racks	36.00 to 45.00	$8.57 to 10.71
Chests	38.00 to 80.00	9.04 to 19.04
Screens, bamboo:		
Three panels	13.00 to 17.00	3.09 to 4.04
Four panels	17.00 to 21.00	4.04 to 5.00
Pedestals of walnut or mahogany	6.75 to 16.50	1.61 to 3.92

MAY CROP REPORT IN PRUSSIA.

Under the Prussian system, official reports of the condition of growing crops are collected on the 15th of each month, then tabulated, classified, and the net result published. As has been hitherto repeatedly explained, the German system of notation is from 1, which means a full maximum crop, to 5, which indicates practical failure. No. 2 indicates a good yield, 3 middling, and 4 meager, so that the higher the number and decimal fraction used, the lower the indicated condition of the crop.

The reports for the middle of May, just made public, confirm the natural impression that the cold, wet, lagging spring has not been favorable to the growing crops of Germany. The last days of April and the first fortnight of May brought cold, persistent rains, with hail and occasional snow, to all of northern Germany. It is only since the 20th of May that a normal temperature has been realized.

The notations of May 15, as compared with those of the same date in 1902, present the following exhibit:

Date.	Wheat.		Rye.	Barley.	Oats.	Potatoes.	Clover.	Lucern.	Grass.
	Winter.	Spring.							
May, 1903	3.1	2.5	2.9	2.5	2.5	3	2.4	2.7	2.7
May, 1902	2.5	2.7	2.8	2.9	2.9	2.9	2.9	2.9	4.2

The situation does not then differ essentially from that of a year ago, and as the critical days of May have passed without frost the outlook is on the whole reassuring. Some of the most fruitful years in Germany have been marked by a cold, late, discouraging spring.

The whole percentage of winter-wheat fields in Prussia which have been plowed up this spring on account of winter killing and destruction by mice, snails, and other pests has been 20.79, as compared with 17.09 per cent plowed up during the spring of 1902.

FRANK H. MASON,
Consul-General.

BERLIN, *May 23, 1903.*

PACKING OF GOODS FOR FOREIGN MARKETS.

There is probably no subject which has been more insisted upon by consuls in all parts of the world in their official reports than the proper packing of goods intended for the foreign market. An incident which occurred a few days ago again forcibly brings home the necessity of the most scrupulous attention to the matter of packing goods for the export trade. A shipment of 40 cases of machine parts recently arrived at the Chemnitz custom-house, intended for a local machine-building concern which ranks as one of the largest in the world. The cases weighed 250 and 500 pounds, in round numbers, there being two sets of goods. They were constructed of heavy 2-inch hard wood. With the exception of a number of wrenches, bolts, and the like, the contents of each case consisted of one solid piece. Parts were of delicate construction, consisting of glass plates and glass reflectors set in iron.

Out of a total of 40 cases, the contents of but 6 arrived in good condition. The most serious injuries sustained by the machinery were heavy indentations of the sheet-iron casing, the breaking off of large and important parts of the cast-iron frames, and the breaking of glass plates and reflectors.

In one case the iron foundation plate was broken off, due to wrong attachment in the cases and to too spacious packing; in another the electrical conductors were left exposed. It may be mentioned that 38 copper tips were lost during transportation, having been loosely attached.

The hard-wood casing was in itself sufficiently strong and the nailing sufficiently thorough to secure stability. In justice to the shipper, it must be said that the manner of the packing, however prominent its weaknesses, indicated intention on his part to do a thorough job. Apparently, however, he possessed no previous experience in packing for export. The main fault was that all the cases were much too spacious for their contents. The heavy material was given the opportunity to flop from side to side and hence was subjected to tremendous strain when being handled, and on a rough, rolling sea.

The more delicate parts (shades, glass plates, and reflectors) ought to have been packed in separate boxes with a liberal use of excelsior or other soft material. Wrenches, latches, bolts, etc., ought to have been put up in small boxes, and not merely attached to the iron framework by means of thin wire, which wears out and breaks off in the course of a long journey.

However much the occurrence is to be regretted, the thing to do is to take the lesson to heart and to do better next time. It must be remembered that the question of packing has two sides to it—stability and appearance. In the case of heavy goods, stability is paramount. For lighter goods—like food stuffs, drugs, perfumery, soaps, etc.—appearance counts in winning popularity for an article. Neatness and tastefulness in the packing of goods attract attention.

J. F. MONAGHAN,
Consul.

CHEMNITZ, *May 6, 1903.*

AMERICAN AND RUSSIAN PETROLEUM IN GERMANY.

In the 1902 report of the chemical examination bureau of Breslau, it is stated that Roumanian petroleum, which had at one time been looked upon as a promising factor in the German markets, has almost disappeared, as well as the Galician product. The Galician wells, it is said, are no longer as productive as formerly. This leaves the field open to the efforts of the American and the Russian companies. It is stated to be in the interest of Germany to see that there is no coalition between these two, which can be prevented only by increasing the demand for the Russian product. The German buyer, however, is said to look upon the Russian oil with disfavor. The German authorities have for years been increasing their orders to the Russian company, asserting that this oil is cheaper and of a better quality than the American; but private consumers care nothing about the origin of the oil they use, and the merchants in general continue in their refusal to purchase Russian petroleum. Nevertheless, the report shows that this oil has won considerable ground since 1898.

Lately, there have been renewed efforts to obtain a larger market for Roumanian oil, which have been greatly aided by the statements of German chemists that this oil has proved to be more economical than the American, and that it may be used in lamps constructed for American oil.

ERNEST A. MAN,
Consul

BRESLAU, *May 15, 1903.*

POLLAK-VIRAG RAPID TELEGRAPH IN GERMANY.

A new invention relating to rapid telegraphy is undergoing a practical test, the results of which should receive due consideration in the United States. The system is known as the Pollak-Virag rapid telegraph, and after a careful examination at the Polytechnic Institute at Charlottenburg it was shown to the Emperor and Empress of Germany about the middle of last February. It was decided at this visit by the chief of the German postal system and other influential persons that the new system would be given a practical test on the line between Berlin and Königsberg, which is some 710 kilometers (447½ miles) long. The results obtained with the new system are considered most satisfactory, as it has been demonstrated that 40,000 words per hour can be transmitted under the most varying conditions. The imperial telegraph service has decided to introduce the system on the busy line between Berlin and Frankfort.

A special writing machine, worked in the usual way, perforates a strip of paper which is drawn over a roller under metallic brushes with great rapidity. The interruptions of the current move the membranes of two telephones at the receiving station, which write the messages by means of a small mirror. In scientific circles the new system has created a great deal of interest, and some of the technical journals in Germany have given descriptions of it. Of these, one of the best appeared in the Zeitung des Vereins Deutscher Eisenbahn-Verwaltungen, of November 19 and 26, 1902.

DEAN B. MASON,
BERLIN, *May 25, 1903.* *Vice and Deputy Consul-General.*

PROGRESS IN GERMAN CABLE LAYING.

A new era in German cable construction began with the laying of a cable to Vigo, Spain, a distance of about 1,300 miles.

During the last seven years, Germany has laid 7,375 miles of cable, at a cost of over $7,000,000. In 1898 a cable, 73 miles in length, was laid between Sassnitz and Trelleborg, and in 1899 German Southwest Africa was connected with the international telegraph system by a cable 154 miles long.

In 1900 the first German-American cable between Emden and New York, via the Azores—a distance of 4,813 miles—was laid. At about the same time Germany put down the first German cables along the Chinese coast, the cable Tsintau-Chefoo being 285 miles and that connecting Tsintau and Shanghai 438 miles long. The year 1901 witnessed the laying of the fifth cable between Germany and England, connecting Borkum and Baktou, a distance of 280 miles. The telephone cable between Fehmarn and Laaland was laid in 1902.

The construction of a second trans-Atlantic cable between Emden and New York, via the Azores, has been commenced and will, it is expected, be ready for service before the expiration of the next year. Germany is also contemplating an increase of her cable net in eastern Asia and the South Sea by constructing cables between Alenado and Guam and the Palau Islands and Shanghai.

It is said that the growth of German interests, both military and commercial, will in the future require the building of more cables by Germany, independent of foreign nations. Germany now has cable works and two cable steamers.

RICHARD GUENTHER,
FRANKFORT, *May 14, 1903.* *Consul-General.*

AMERICAN DRIED FRUITS IN GERMANY.

While in the United States last year, I visited a number of the larger prune and apricot orchards in the vicinity of San José, Cal., and since my return to this country have given the importation of evaporated American fruits considerable study. For this part of Germany—namely, Baden and Alsace-Lorraine—I find the outlook for increased sales most encouraging. From the leading importer in the western part of Germany I learn that California prunes and apricots are rapidly supplanting the products of France and Italy. The California fruit is cheaper and its flesh brighter and more solid.

Speaking of the packing and drying of prunes and apricots, my informant tells me he has no fault to find, except with the manner in which the boxes are put together. He says there would be less breakage if they were dovetailed instead of being simply nailed.

Regarding the time in transit, he says that he has experienced considerable annoyance and some loss of trade in consequence of shipments being delayed en route from California. One shipment was over ten weeks on the way; the buyers think the goods were held in New York several weeks. California fruits are generally paid for in advance, which fact makes delays in shipments especially annoying.

The Elsässische Conserven-Fabrik und Import Gesellschaft, of Strassburg, last season sold 8 carloads of apricots, 10 carloads of prunes, and 25 carloads of evaporated apples. Prunes and apples retail here at from 12½ to 15 cents per pound and apricots at 20 cents.

The evaporated apples come from the vicinity of Rochester, N. Y., and find a ready sale. Considerable fault, however, was found with the shipments of last season. The apples were not all sufficiently dried before packing, which caused them to mould in the boxes. The metric system should be used in foreign shipments.

JOSEPH I. BRITTAIN,
Consul.

KEHL, *May 29, 1903.*

OPENING FOR DRIED FRUITS IN FRANCE.

Several commission merchants at Nantes have requested me to secure for them the agency of responsible fruit-exporting houses in the United States. There is a growing market in all western and northwestern France for American dried fruits (the prunes of southern California being most in request) and the demand is unusually active this year because of the almost complete failure of the French fruit crop. Any of our fruit exporters who wish to be represented at Nantes need only communicate with this consulate.

The merchants here are interested in California prunes, dried apricots, and dried apples; they wish particularly to hear from California firms that will export these products direct to Nantes, as they do not care to do business through middlemen at Antwerp, Hamburg, and Liverpool.

The season is advancing, and if this excellent market interests any of our exporters who are not already represented in this territory, they should communicate at once.

BENJ. H. RIDGELY,
Consul.

NANTES, *May 22, 1903.*

SURTAX ON GOODS INDIRECTLY IMPORTED INTO FRANCE.

Vexatious correspondence and loss of money have recently resulted in a number of cases because of unfamiliarity, on the part of United States shippers to France, with the French regulations respecting merchandise transshipped in some European port before arriving in the port of destination. In some instances, merchandise has been forwarded under what the consignors deemed to be a through bill of lading, the possession of which they vainly presumed would protect them against the imposition of the French surtax which is applicable in the case of importations from a European country of products of extra-European origin. The exemptions from this surtax are: Quinine bark; Australian, South African, and Indian wool; Indian cotton; jute, cacao fiber, and vegetable fiber generally, with the exception of cotton; tobacco; and Ceylon plumbago. It will be observed that none of these exemptions cover merchandise of American origin. The surtax ranges from 1.80 francs (34 cents) to 60 francs ($11.58) per 100 kilograms (220 pounds) in about forty specified cases, and is 3.60 francs (69 cents) per 220 pounds in all nonspecified cases. In order that there may be no misunderstanding about the matter, I have procured from the collector of customs at this port an official letter, in which he says:

> Replying to your inquiry of the 6th instant, I have to say that, except in cases of superior force or acts of God, which do not constitute an interruption to direct transportation, merchandise transshipped in the course of its journey by sea is regarded as having arrived from the place where such transshipment has occurred. It results from this that the surtax is applicable to products of extra-European origin brought into France by a ship which has received them in a European port, whatever may have been the commercial reasons and particulars respecting the transshipment.
>
> This surtax is applicable to nearly all classes of merchandise, and the exceptions to the rule are very rare indeed. These exceptions in general arise from geographical or economic considerations, and it suffices to cite a few examples to design their character. Thus, for example, it is possible to import by way of Denmark the products of Iceland and the Faroe Islands; from European Russia, the products of Asiatic Russia; from Constantinople and the European ports of Turkey upon the Black Sea, the products of the Asiatic possessions of the Ottoman Empire; from Spain, the products of the Canary Islands and of the Spanish possessions of the Morocco coast; etc.

As American shippers are obliged to pay the maximum tariff of France, except in a limited number of cases covered by the commercial convention with the United States signed on May 30, 1898,* the imposition of a surtax makes the transaction of business practically impossible, and shippers should guard against the possibility of the application of this surtax by forwarding their goods on board steamers sailing directly from American to French ports.

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *May 18, 1903.*

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* See Special Consular Reports, Tariffs of Foreign Countries, Part I, p. 222.

COAL IMPORTATIONS AT MARSEILLES.

The total imports of coal at Marseilles during the year 1902 were 965,542 tons, showing a decrease of 86,964 tons from the quantity imported for the previous year, when the importations were 1,052,526 tons.

The imports for 1902 were:

	Tons.
South Wales coal	785,476
Sunderland and Tyne coal	117,849
Scotch coal	5,754
Other qualities	5,334
Total British coal imported	914,413
Germany	28,646
United States	14,285
Belgium	7,200
Russia	998
Total importations	965,542

Included in the above return of British coal, there are about 15,000 tons of patent fuel (briquettes) and 61,000 tons of gas coal from the Sunderland and Tyne districts.

Of the American shipments, about half the quantity was gas coal, while the German was composed of coal, patent fuel, and coke from the Westphalian districts, and was delivered to the Paris, Lyons, and Mediterranean Railway Company, the Messageries Maritimes Company, Transports Maritimes Company, and the Marseilles Compagnie du Gaz et Hauts Fourneaux. The prices obtained were low, and the importations have been made by the companies here with a view to ascertaining the results to be expected from this coal, as compared with British coal.

The 7,200 tons from Belgium were patent fuel. The Russian coal was only a small sample and, I understand, did not give good results.

The f. o. b. price for contracts can be averaged at 22s. 6d. ($5.46) per ton, the average current price being about 1s. (24 cents) per ton higher.

Extreme competition for 1903 has resulted in large contracts being taken at figures which can not be remunerative, and, although the volume of trade this year may not materially differ from that of 1902, the losses at Marseilles will be considerable, unless the prices which have ruled in South Wales for the first five months are considerably reduced.

I still deem it unfortunate that American exporters failed to follow up their energetic and successful efforts of previous years to get into this market, while fully comprehending the causes of their present indifference. In the long run, I believe that it would have paid to have accepted moderate profits in this market as against better profits at home. For the same reason, local dealers are selling British coal at a loss, with the expectation of recouping later on. German coal seems to be stepping into the place recently made by American fuel. In appearance, this coal is inferior to the British product and is selling for less money.

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *June 2, 1903.*

STRIKE OF GLASSWORKERS IN BOHEMIA.

Unsatisfactory conditions in the cut-glass industry of Bohemia—more or less unsettled for years—have reached a climax in the strike of some 1,600 skilled cutters and finishers, now affecting some twenty manufacturing towns and villages and threatening to involve the entire industry of the district. These workers are a peculiar class, frequently constituting the population of the village where a factory is located. Children begin to receive instruction at very early ages, and from about 6 years serve an exacting apprenticeship. A portion of this cutting and finishing work is done in the factories proper, where power and machines are furnished under varying conditions, which to a large extent are responsible for the prevailing discontent. Of the 3,019 workers of this class, 1,055 are females. Much of the work, however, is done by foot power at the humble homes of the workers, being carried back and forth on the backs of women and girls, the simple machines being either owned by the workers or rented from the factories. There are 7,257 of these skilled artisans, as shown by the recent industrial census, and unquestionably a large proportion is women. All work is done by the piece, no fixed daily wages being paid. An employer claims that the average wage amounts to 3.15 crowns (76.5 cents) per day for male and 2.30 crowns (55.8 cents) for female labor for the five days of the week upon which work is done. The strikers allege that the average daily wage is only 2 crowns (48.6 cents) per day, and they demand 3.15 crowns (76.5 cents). At a meeting of representative employers this week it was determined that no increase of wages could be given in the present disorganized state of the industry, but that certain reforms would be instituted. This is offered as a temporary expedient until the manufacturers can create an association to fix the selling price of goods. The newspaper organs of the workmen predict a long struggle unless the owners agree to a substantial advance in wages. Meanwhile, the strike is spreading, disorders have occurred, and the trade is generally demoralized at its busy season. The aggregate of exports to the United States from this district for the year ended March 31, 1903, was only $101,220.97, representing but a very small fraction of the product. Before the recent expansion of the American industry, exports to the United States were much larger. India and China are becoming excellent markets, and the continental demand is always heavy.

S. C. McFarland,
Consul.

Reichenberg, *April 24, 1903.*

DRAWBACKS IN HUNGARY.

The Hungarian Government granted drawbacks last year to 22 Hungarian firms in 27 cases. The most important were:

Article imported.	Article exported.	Character of drawback.
Crude lead	Firearms	Renewed.
Crude cocoa	Cocoa and chocolate manufactures	Do.
Crude rice	Rice products	Do.
Boiler heads and plates	Boilers	Do.
Crude iron	Steam and blast engines	Do.
Iron plates in rolls and wheels and crude iron pots	Enameled kitchen and household goods.	Do.
Crude rice	Milled rice	Do.
Tinned iron plates	Metal signs	Do.
Iron plates, boiler heads, and rings	Manufactures	New.
Shipyard supplies	Manufactured or improved articles	Renewed.
Copper wire, lead, clamp iron, round and square iron cable, and zincked iron wire.	Cables	Do.
Wrought iron	Hinges	Do.
Carriage supplies	Carriages	New.
Iron plates	Boilers and tanks	Do.
Iron plated and other iron ware	Tin and cast-iron pots	Do.
Tinned and zincked iron plates	Metal boxes for flour	Renewed.
Electrical supplies	Electrical machines	Do.
Iron rails, etc	Switches, railway cars, etc	Do.
Iron wire and cable	Chains	New.
Cast iron	Cast-iron ware	Renewed.
Tinned iron plates	Petroleum cans	Do.
Crude rice	Milled rice and starch	Do.
Crude iron	Steam and blast engines	Do.
Crude lead	Lead ware	Do.
Do	Firearms	Do.

In Hungary only manufacturing concerns avail themselves of such drawbacks, while in Austria middlemen also enjoy the privilege by the employment of small tradesmen. It is proposed in Hungary to follow Austria's example, especially as regards the free import of linen, cotton, and silk wares, pipes, cloths of all kinds, cotton velvet, umbrella supplies, carpets, etc., for the purpose of exporting them in an improved or manufactured form. It is intended in particular to assist the skilled needleworkers at Kalotaszeg (eastern Hungary) and those in North Hungary by forming companies responsible for the performance of the drawback conditions. The market to which it is intended to export is Saxony, which supplies the United States with products of fine needlework. American importers may find it to their interest to look after the market in Hungary. On the other hand, our exporters will learn from the foregoing list what raw material may be advantageously shipped to this country.

FRANK DYER CHESTER,
Consul.

BUDAPEST, *April 25, 1903.*

PROPOSED PUBLIC WORKS IN HUNGARY.

The Hungarian Minister of Finance has introduced a bill containing a programme of public works of an estimated cost of 262,557,000 crowns ($53,299,071), to cover several years. The amount for the year 1903 is about $6,000,000. Four per cent bonds, it is said, will be issued to cover the expenditure.

The principal works planned are: Nationalization and extension of Transylvanian railways; building of Baja-Battaszek bridge over the Danube, joining the cross country with the Fiume line; building a railroad and bridge across the Danube, connecting Komarom with Ersek-Ujvar, points on two Vienna-Budapest lines; regulation of Bega River from Nagy Becskerek to Temesvar; and building of Budapest Harbor by regulating the branch of the Danube next to Soroksar, on the south side of Budapest.

Certain public buildings will also be put up or enlarged, and Fiume will receive new marine and railway facilities.

FRANK DYER CHESTER,
Consul.

BUDAPEST, *May 29, 1903.*

PROGRESS OF THE SIMPLON TUNNEL.

Consul H. L. Washington sends from Geneva, May 23, 1903, an extract from a report of the Federal Council for the year 1902 on the construction of the tunnel through the Simplon, as below:

> On the northern side the building has been very regular. On account of the exceptional difficulties encountered (nature of soil), the piercing by machinery—stopped in October, 1901—was resumed only in May, 1902, after an interruption of nearly eight months, during which the total advance was only 83 meters (272 feet). Since then, the drilling on the southern side has been very satisfactory; in June and July 238 and 219 meters (780 and 717 feet), respectively, were pierced.

The extremely rapid increase of the rock temperature in April and May alarmed the officials of the undertaking—129° F. being reached at one time; but the bottom of the northern gallery being below the culminating point of the mountain, it is almost certain that the temperature will not increase any further. The installations on the northern side for aërating and cooling the air give satisfactory results, the temperature varying between 75° and 82° F.

The advance made in 1902 in Tunnel No. 1 was 3,565 meters (11,696 feet), or an average per day of 32.47 feet. The total progress on December 31, 1902, was:

Description.	Distance completed.	
	Meters.	*Feet.*
Tunnel No. 1	14,328	46,996
Tunnel No. 2	14,110	46,281
Complete excavating of No. 1	12,514	41,046
Complete covering of No. 2	12,075	39,606

The expenditure on the tunnel, including the lines of access, amounted in round numbers to 9,800,000 francs ($1,891,400) from the 1st of October, 1901, to the 30th day of September, 1902 (fourth year of construction), and for the total of the four years to 37,800,000 francs ($7,295,400).

WHEAT AND FLOUR TRADE AT MALTA.

The annual report of the local chamber of commerce for 1902 says, in part:

> The importation of wheat in 1901 amounted to only 491,928 bushels, as against an annual average of 852,072 bushels for the previous fifteen years. The diminution in the importation of wheat in 1902 is much more marked and necessarily has been covered by increased importations of flour. The importation of manufactured wheat, which includes flour, is acquiring importance. In 1901, 30,652,125 pounds were imported, showing an increase of 28,613,725 pounds over 1900.

For the past two or three years very little American wheat has arrived at Malta. The customs authorities have just published a statement of the wheat, indian corn, and barley imported, consumed, and exported from April 1, 1902, to March 31, 1903. The report shows that upon April 1, 1902, there remained from previous importations 27,490 quarters of wheat and 963 quarters of barley. The importations during the period amounted to 93,926 quarters of wheat, 396 quarters of corn, and 6,724 quarters of barley. A large proportion of American exports to Malta consists of flour.

JOHN H. GROUT,
Consul.

VALLETTA, *May 13, 1903.*

PASSENGER ELEVATOR AT MALTA.

The local government authorities have advertised for tenders for the construction of a large passenger elevator. The custom-house landing on the Marina being at sea level, and the principal business portion of the city of Valletta being located upon a high eminence, there is no way to reach the latter except by steep and winding streets. It is intended to construct an elevator from the brow of the town plateau to its base. Should any United States contractors be interested, application as below will provide all necessary information. The advertisement reads:

OFFICE OF THE RECEIVER-GENERAL AND DIRECTOR OF CONTRACTS.

Sealed tenders will be received at this office up to 11 a. m. on Friday, the 30th of October, 1903, for the concession of the right to construct a lift from the Marina to the Upper Barracca, as shown on a site plan which may be seen in the office of public works, and to work the same for a period of either sixty or ninety-nine years, together with the right to levy tolls and transit dues.

1. Tenderers should specify the arrangements which they propose for providing the necessary capital and the period within which the work will be completed. Every tender should be accompanied with detailed plans and specifications of the proposed scheme.

2. No tender will be considered unless it is signed by the party tendering and by a responsible person engaging to become bound with him for the due performance of the contract, and unless a deposit of £100 ($467) be paid in this office; such deposit to be forfeited in favor of the government should the party tendering or his surety, in the event of the tender being accepted, fail to appear to sign the contract within three days from the date of the notice given to them to that effect. Any deposit not so forfeited will be returned immediately after written notice shall have been given to the party whose tender is accepted.

3. The government does not bind itself to accept the highest or any tender, and tenderers should be prepared to submit to any alteration in their plans which may be called for by the military authorities.

4. Information regarding the conditions of the concession may be obtained at the receiver-general's office.

JOHN H. GROUT,
Consul.

VALLETTA, *May 6, 1903.*

NEW BREAKWATER AT MALTA.

On April 20, the King of England laid the foundation stone of the new breakwater at Malta. Malta has two harbors—Quarantine Harbor and Grand Harbor—but the improvement will be confined to the projection of the latter, in which nearly all of the commerce of the islands is carried on. It is also the headquarters of the large

British Mediterranean fleet and the location of the admiralty dockyards. In a northwest gale, Grand Harbor has been a dangerous place to enter. When the breakwater is completed, not only will the bay be a safe and available place of anchorage at all times of the year, but extra space will be made by dredging, and additional moorings will be provided to meet the urgent need of berthing accommodation which has been required of late years. The contract was let to Messrs. Pearson & Son, Limited, and the amount to be paid for the work is, approximately, $5,000,000. It is expected that three years will be consumed in completion. The foundations of the breakwater will be cut into the solid rock in a depth of water varying from 25 to 70 feet, and will consist of concrete mass work carefully leveled to receive the blocks of concrete weighing 40 tons each, of which the superstructure will be built. These blocks of concrete will be made at St. Paul's Bay—12 miles from the works—and brought down in lighters to the site. The breakwater itself will be constructed with two arms. The inner one will extend from Fort Ricasoli 400 feet northwest, with a thickness varying from 38 to 40 feet, and will terminate in a circular end, on which a light-house will be erected about 40 feet above the level of the sea. Seaward of this arm will be a wave breaker, consisting of 40-ton blocks of concrete thrown pellmell into the sea. The outer arm will start about 224 feet from St. Elmo Point and run 1,240 feet northeast, with a thickness of from 48 to 52 feet, and terminate in a lighthouse similar to that at Ricasoli. In order to allow passage for boats, and to prevent stagnation of the water in the harbor, the long arm will not be built right up to St. Elmo Point, but will be connected to it by a steel viaduct 224 feet long. American concerns dealing in supplies likely to be needed in the work should confer with the head office of the company in London.

JOHN H. GROUT,
Consul.

VALLETTA, *April 21, 1903.*

STEAMSHIP SERVICE WITH COPENHAGEN AND BALTIC PORTS.

The new 10,000-ton steamship *United States* leaves Copenhagen to-day for New York on her first trip. The *United States*, like her sister ships, *Hellig Olav*, which is now on her maiden voyage to New York, and *Oscar II*, which was put into service in 1902, is a well-equipped, modern steamship. She accommodates 131 first-cabin, 76 second-cabin, and 1,302 steerage passengers, or a total of 1,509.

Her gross tonnage is 10,085; net tonnage, 6,019; horsepower, 8,350; and speed, 15 knots. She is 500 feet long, 58 feet wide, and 41 feet deep.

These vessels are important additions to the list of passenger and freight steamers plying between Scandinavian and United States ports. Each has more than twice the net tonnage capacity of any other steamer in this trade.

The United Steamship Company (Det Forended Dampskibs-Selskab) of Copenhagen, for which the new steamships were built, owns, in all, 127 steam vessels, of 156,483 gross tonnage. Of this number, 17, with 73,500 tons, are engaged in the trade with the United States. The three ships already mentioned, together with the *Norge*, *Hekla*, and *Island*, of 3,300, 3,200, and 2,800 tons, respectively, constitute what is popularly known as the "Scandinavian-American Line." Their terminal points are Copenhagen and New York, and they touch at Christiana and Christiansand, in Norway. Other steamers run from Copenhagen to New York, as well as to Boston and New Orleans.

The company maintains regular connections with practically all European ports. Especial attention is given to the Baltic Sea trade, although conditions do not yet warrant direct service from the United States to far eastern Baltic ports. It is but a matter of time, however, when a regular line of steamers will be established. At present quantities of freight are transferred at Copenhagen from the trans-Atlantic steamers of the company to other vessels which run to Baltic ports.

American exporters appreciate that success in holding and extending foreign markets depends to a considerable extent on ocean transportation facilities. Copenhagen, with its admirably conducted free harbor and extensive shipping interests, is destined to be reckoned among the world's greatest distributing centers. The Danes are not only consumers of our products, but they act as intermediaries in a large way for American goods of every description. Our manufacturers and exporters should recognize the promising conditions here and take advantage of them.

RAYMOND R. FRAZIER,
Consul.

COPENHAGEN, *June 3, 1903.*

BRITISH HOUSE-CLEANING DEVICE.

The sidewalk in front of a large furnishing house in this city is daily blocked by crowds of people watching through the windows the working of a new cleaning device. The first inquiry of the surprised and admiring spectator usually is, Is that an American idea?

So far as is known here, there is nothing like this cleaner outside of England. The firm (Smart & Brown) exhibiting it informs me that it recently received from a Chicago dry-goods house an inquiry for a cleaning device on this same general principle.

The system was invented by Mr. H. C. Booth, of London, and last year was taken over by a company which experimented with it in various metropolitan hotels, theaters, and other public places. Lately it has been tested in railway carriages, and now, its practicability being assured, agencies are being established throughout the British provinces.

The apparatus consists, in the first place, of a machine composed of a 2 to 4 horsepower motor—oil or electric—and an air pump, serving to maintain an "exhaust" of several pounds to the square inch. The machine may be portable, on wheels, or stationary. To it is attached a filter—the dust receptacle—a tightly closed metallic vessel, with capacity of a peck or more. From the filter extends a 1½-inch rubber hose, which may be of any desired length up to about 700 feet. The hose terminates in a "cleaner" or "renovator," which is a tube flattened out at the end into a kind of long slit. This is rubbed over the carpet or up and down the cloth covering of settees or chairs, from which it quickly sucks all the dust, extracting it not only from the surface, but also from the body of the substance and from underneath it—the underfelt being thus cleaned. Not a particle of dust can be detected if the carpet is then beaten. Indeed, in an experiment made in this city with a carpet returned as clean from a power beater, a considerable amount of dust was extracted by the vacuum process. The severe test of sprinkling a carpet with flour and thoroughly rubbing it in has been made, the vacuum cleaner removing every particle of the flour.

No dust is raised in a room. All is sucked through the hose into the filter, whence it is removed and hygienically disposed of—analysis showing that it is composed of many deleterious substances. The pile and color of a carpet are restored by this process, and it is claimed that there is no injurious effect whatever.

In a similar way, walls may be cleaned of dust, the cleaner being a brush of horseshoe shape, with an exhaust tube in the center.

In hotels, theaters, large business houses, and the like, it is proposed to install permanent stationary plants, so that cleaning can take place daily, thus practically abolishing sweeping. Such a plant would be in the basement, with an iron pipe of small diameter leading to fixed points on each floor. At these points flexible hose would be attached, and the plant would be operated, collecting the dust in the basement. No skilled operators are required. Railroad and street cars, vehicles, and ships' cabins and saloons could all be cleaned daily by stationary plants.

To clean residences, the portable machine can be placed in the yard or street and the hose extended into the different rooms. It is stated that the carpets, tapestry, upholstered furniture, mattresses, and bed clothing can all be cleansed of dust in a day, one man cleaning six or eight rooms. There are half a dozen different renovators attachable to the hose, adapted for carpets, chairs, walls, or bedding, as the case may be.

Nothing is said about cleaning clothing, but there is no perceptible reason why the process would not serve that purpose.

The sanitary feature of this mode of cleaning, in that it removes dust from the house and destroys it, is dwelt upon. The London Lancet considers the system of sufficient importance to particularly describe and approve it.

The machines and apparatus are at present only leased and in no case sold by the cleaner company.

FRANK W. MAHIN,
Consul.

NOTTINGHAM, *April 25, 1903.*

COMMERCIAL EDUCATION IN EUROPE.*

SWITZERLAND.

Commercial education has developed very rapidly in Switzerland during the past ten years. The merchant unions have been active in this respect, and in many cases have received Government aid. The Government also gives stipends to especially bright students to enable them to continue their studies at some higher institution of learning.

The first commercial school in Switzerland was established in Zurich in 1855 in connection with the cantonal school of that city.

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* For other reports of this series by Commercial Agent Harris, see ADVANCE SHEETS Nos. 915, 1373 1573, and 1628; for reports on commercial education by other consular officers, see also ADVANCE SHEETS Nos. 1285, 883, 401, 329, 366, and 251; CONSULAR REPORTS Nos. 200, 202, 167, 174, 181, 185 177, 197, and 189.

In 1856 a similar one was founded in St. Gall, and another in Berne during 1857. In 1900 there were seven commercial schools which received Government subventions—namely, Berne, Chaux-de-Fonds, Geneva, Nauenburg, Solothurn, Winterthur, and Lucerne. These schools are attended annually by about 500 pupils. The assistance given by the State amounts to $12,000 a year, $1,000 of which is in stipends. It is to be expected that these schools will shortly be extended to all the other cities of importance in the country. Switzerland, in point of population, industries, and commerce, may be favorably compared with the Kingdom of Saxony. That little Kingdom, however, stands in the front rank of nations as far as commercial education is concerned, having 51 finely organized commercial schools.

The subjects taught in the commercial schools of Switzerland cover all the branches employed in training young men for business life. The subjects of materials of commerce, commercial geography, commercial law, and political economy are also taught. Special attention is paid to languages. The salaries of teachers amount to from $540 to $870 per annum. Apprentices in some of the Cantons (for example, Basel and St. Gall) are admitted free of tuition. Foreigners are also admitted, but are obliged to pay double tuition. Examinations are held and diplomas given at the end of each year.

In some of the cities in Switzerland—for instance, Berne, Biel, and Zurich—commercial classes have been organized in the higher schools for girls (Höhere Mädchenschulen). These departments receive no State aid.

The primary commercial schools in Switzerland—that is, those which are to be compared with schools of this class in Germany, which I described in the last report of this series*—are attended by the following number of apprentices:

I. The attendance in the obligatory primary commercial schools, including girls, is about 20,000 in round numbers.

II. The attendance in the voluntary primary commercial schools is 25,000.

The subjects taught in the Swiss primary commercial schools or classes are arithmetic, reading, geography, and elementary bookkeeping. In 1890 the merchant unions in Switzerland expended about $30,000 for this class of schools; in addition, the Government granted $10,000. Instruction is usually given either in the early morning or after business hours in the evening. The public school teachers are generally enlisted to give instruction and receive as extra compensation about $50 per quarter.

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* See ADVANCE SHEETS No. 1628.

NETHERLANDS.

There are three public commercial schools supported by the State—in Amsterdam, Rotterdam, and Enschede. The school in Amsterdam is independent, while the other two are connected with the public schools of Rotterdam and Enschede. The following table, with subjects and number of hours per week, explains itself:

Subject.	Amsterdam.	Enschede.	Rotterdam.
	Hours.	*Hours.*	*Hours.*
Dutch	3	…	4
French	5	4	4
German	4	4	4
English	4	4	4
Bookkeeping	3	3	3
Commercial arithmetic	3	3	3
Chemistry and materials of commerce	3	6	2
Commercial geography	2	2	2
Natural history	…	1	1
Political economy and commercial law	2	2	2
History of commerce	2	…	2
Penmanship	1	4	2
Total	32	33	33

AUSTRIA-HUNGARY.

The primary commercial schools in Austria which receive State subventions are in the following towns:

Klagenfurt.
Cilli.
Gmunden.
Budweis.
Karlsbad.
Znaim.
Saaz.
Pettau.
Salzburg.
Neustadt.
Eger.
Tetschen.
Laun.
Rumburg.
Marburg.
Steyr.
Bodenbach.
Jungbunzlau.
Troppau.
Tautenau.
Leitmeritz.

There are a number of others in towns which I have been unable to locate.

The number of advanced commercial schools in Austria subsidized by the State is as follows:*

Trieste.
Reichenbach.
Innsbruck.
Trient.
Prague.
Graz.
Cracow.
Linz.
Chrudim.

A law exists in Hungary which says that where there are 50 apprentices in any one community, instruction in commercial subjects must be provided. The course of instruction must be maintained, even if the number of pupils should at any time fall below 50, provided that the outlook is that this standard may be regained. The time spent by an apprentice in Hungary in learning his trade is three years, as in most other countries. During the year there must be at least ten months of uninterrupted instruction. The months of July and August constitute the vacation period; other vacation days are: Christmas, from December 20 to January 2; Easter, one week; and Whitsuntide, two days. The birthdays of the Emperor and Empress, as well as of a number of other personages, are also kept as holidays.

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* There are some three or four in addition to these.

As soon as a child is registered as an apprentice, it is the duty of the master to send him to one of the apprentice trade or commercial classes. Apprentices are compelled by law to attend the public school every day until the age of 12 has been reached. There is a law, however, which prevents a child under 12 years of age from becoming an apprentice, but a great many children become such by special permission of the municipal authorities. Apprentices must have completed the public school course by 12 years of age, must have a knowledge of arithmetic, and must be able to read and write readily. In exceptional cases, where an apprentice has not completed a public school course, the director of the school may admit him as a pupil if he can read and write sufficiently. In towns where no commercial schools exist, apprentices after 12 years of age are compelled to attend advanced classes in the public schools; they must attend school during the entire time of their apprenticeship.

The commercial schools or classes usually occupy rooms in the public schools. The public school teachers are employed, more or less, to give instruction. In schools where independent teachers are employed, the positions are for life. Teachers from the public schools are, in most cases, only temporarily selected.

The subjects taught in the advanced commercial schools in Hungary are the following:

Subject.	Number of hours per week.	Subject.	Number of hours per week.
Religion	1	Active office work	1
Hungarian language	4	Bookkeeping	1
German	4	Commercial correspondence	2
French	4	Political economy	1
Commercial geography	2	Chemistry	1
History of commerce	2	Materials of commerce	2
Mathematics	2	Writing	2
Natural history	2	Total	34
Commercial arithmetic	4		

BELGIUM.

There are several institutions in Belgium in which only commercial branches are taught. The Higher Commercial Institute in Antwerp, which may be placed in this class, was founded in 1852 by the joint efforts of the Government and the municipal authorities.

Pupils who have completed the higher public schools are admitted without examination. The course of instruction occupies two years, at the end of which time each pupil receives a diploma. The number of pupils averages about 300, only one-half of whom are natives of Belgium. After the course has been completed, young Belgians who have shown special aptitude in their studies may become candidates for a stipend granted by the Government, which will enable them to reside for a short time in some foreign country to more thoroughly fit themselves for active business.

The Commercial Institute of St. Ignace, in Antwerp, was founded by the Jesuits in 1852. The course of instruction lasts six years. A commercial museum has been established in connection with the school. Examinations are held by a committee, and written testimonials are issued to those who complete the commercial courses.

The commercial school in Melle was founded as long ago as 1837. It has been attended by about 1,000 pupils since that time, and many of them are to be found to-day holding responsible and profitable positions in large commercial houses.

In 1868, an institute for languages and commercial sciences was founded in Liege. The curriculum includes the following subjects:

Commercial arithmetic.
Commercial geography.
English.
Flemish.
Tariff law.
Civil law.
German.
Italian.
Political economy.
Commercial law.
French.
Spanish.

Instruction takes place in the evening after business hours. The school is coeducational, having about 350 male and 50 female students.

In addition to these schools, a great many classes have been organized in Brussels, Antwerp, and Ghent, which give instruction in languages. There are many schools of a private nature established by Catholic priests, in which languages, bookkeeping, and other commercial subjects are taught. Higher institutions of learning in Belgium also devote much attention to commercial education. The school of mines in Mons, the naval schools in Ostend and Antwerp, and the agricultural school in Gembloux all teach languages, commercial law, and commercial geography. In the State universities of Liege and Ghent, as well as in the universities in Löwen and Brussels, lectures are given on national political economy, commercial geography, statistics, finance, commercial law, and mathematics. The Government decided to have these lectures in the universities, as they gave young men a better preparation for the consular service. There are about forty State schools for girls in Belgium where attention is paid to commercial subjects. In the few primary commercial schools which have been established—for example, in Verviers and Liege—girls are also admitted.

NORWAY AND SWEDEN.

The public commercial-school system which exists in Norway is about 27 years old, dating from the establishment of the Commercial Institute in Christiania in 1875. Prior to that event, commercial branches were taught chiefly by public school teachers and others in private lessons. Well-to-do people, who could afford it, sent their sons to Dresden, Leipzig, Lübeck, Copenhagen, and other foreign cities for special training in large business houses. In 1900 there were three public commercial schools in Norway, namely, in Bergen, Christiania, and Bodö. The course of instruction in each lasts two years. The following table shows the subjects taught:

Subject.	Christiania.	Bergen.	Bodö.
	Hours.	*Hours.*	*Hours.*
Political economy	2	2	....
Commercial law	2	2	2
Commercial arithmetic	4	4	5
Bookkeeping	4	4	6
Materials of commerce	1	1	1
Chemistry	2	1	2
Commercial geography	1	1	....
History of commerce	1	1	....
Norwegian	4	3	3
German	4	4	2
French	4	4	2
English	3	4	2
Drawing	....	....	2
Religion	....	2	....
Stenography (elective)	2	....	....
Spanish	1	....	....
Penmanship	2	1	2
Physics	1	....	3
Total	38	34	32

There are two well-organized commercial institutions in Sweden, namely, at Stockholm and Gothenburg. Each school receives an annual subsidy of $2,000 from the Government and, in addition, donations from merchant organizations. The same subjects are taught as in the commercial schools of Norway.

FRANCE.

Commercial education is a subject which has received much attention in France since 1870. The Government has founded no schools of this kind, but it has encouraged the work of the chambers of commerce in this direction. There are three groups of commercial schools in France, namely:

I. Primary commercial schools.
II. Commercial schools.
III. Advanced commercial schools.

Primary commercial schools.—These are located in almost every city of France which has any commercial or industrial importance. The subjects taught and the number of hours devoted to each study per week in most of them are:

	Hours.
French	1
Commercial arithmetic	3
Commercial correspondence	1
English	3
German	3
Spanish	2
Italian	2
Total	15

These schools are nearly all coeducational. The teachers are recruited from merchants and public school instructors. Many of the schools have good libraries. After finishing these courses, the girls easily find positions in large business houses, where many of them draw salaries as high as $500 a year.

Commercial schools.—Most of the institutions of this class in France are connected with industrial schools. Boulogne is the only city in which the commercial and industrial schools are not in the same building. There are 14 commercial schools of this class at present in France, and 7 for girls. They are:

School.	Pupils.	School.	Pupils.
	Number.		*Number.*
Beziers	70	Le Mans	40
Agen	67	Mazamet	78
Boulogne	100	Narbonne	40
Cette	50	Nimes	109
Tourmies	50	Rheims	40
Grenoble	88	Romans	30
Limoges	120	Lyons	....

The commercial schools for girls are situated in Boulogne-sur-mer, Havre, Marseilles, Nantes, Rouen, St. Etienne, and Lyons. It costs about $2,000 a year to maintain one of these schools.

Advanced commercial schools.—In 1900 there were eight commercial schools which belonged to this group. They were the following:

1. Paris—Commercial academy.
2. Paris—Advanced commercial school.
3. Paris—Commercial institute.
4. Lyons—Advanced commercial school.
5. Bordeaux—Advanced commercial school.
6. Havre—Advanced commercial school.
7. Lille—Advanced commercial school.
8. Marseilles—Advanced commercial school.

The following are the subjects taught in these schools:

Drawing.
Commercial law.
Materials of commerce.
Arithmetic.
Bookkeeping.
Physics.
Geometry.
Penmanship.
Algebra.
Political economy.
Chemistry.
History of commerce.
Foreign languages.

The course lasts two years and the hours of instruction average about thirty each week.

RESULTS OF COMMERCIAL EDUCATION IN BELGIUM.

A comparison of what the different countries are doing for commercial education, as described in the foregoing, brings out preeminently the practice of the Institute of Commerce in Antwerp. Students who have passed their final examinations with credit are entitled to offer themselves as candidates for a stipend which permits them to remain for three years in some foreign country for the purpose of studying economic conditions and acquiring a practical knowledge of business. All that is required of them, as far as the Government is concerned, is to report from time to time on the results of their observations. About 70 students have thus far been able to take advantage of this exceptional privilege. The stipend consists of $1,000 a year. These young men have gone out in the interests of Belgium's commerce to Brazil, China, Japan, Mexico, Philippine Islands, Australia, New Zealand, India, the United States, and Canada. Some 30 of them have made permanent homes in the countries to which they were sent. Some have become merchants, others commercial agents, and not a few are in the service of the Japanese and Chinese Governments as educators. To Belgium, however, they remain the pioneers of commerce, and the money thus expended draws ample interest. The far-reaching results achieved prove the wisdom of the policy.

ERNEST L. HARRIS,
EIBENSTOCK, *May 21, 1903.* *Commercial Agent.*

GERMAN COLONIAL SCHOOL AT WITZENHAUSEN.

In CONSULAR REPORTS Nos. 230 and 256,* short notices appear concerning this school. The importance of this institution, however, would seem to justify further details in regard to it. The Deutsche Kolonialzeitung, under date of April 2, contains an article from which I have taken the following facts:

The colonial school was founded at Witzenhausen in 1899 with the express purpose of preparing practical farmers and planters, stock raisers, and wine and fruit growers who might become settlers in the German colonies. Since that time more than three years have passed and the school has had an opportunity to demonstrate its utility.

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*ADVANCE SHEETS No. 1193.

Fifty-four students of the institution have already gone out into different parts of the world. Some of them have independent positions and some are employed in large commercial houses or are voluntarily serving as apprentices with farmers and stock raisers. Students of the school are to be found in South Africa, southern Brazil, Samoa, Sumatra, East and West Africa, Mexico, Paraguay, etc. Two have become farm-land inspectors—the one for the whole district of Lindi, in East Africa, and the other for the district of Dar-es-Salaam; another is manager of a large farm in southwest Africa. The Vietor Commercial and Plantation Company and the Douglass Cotton Plantation Company, in Bremen, have several former students of the school in their service. Another is general manager of a large plantation in Asuncion, Paraguay, and another has been appointed by the German Government to superintend the planting of gardens and forests on the hills surrounding Tsintau, in Kyao-chau. One young man has established himself as a planter in Samoa and another is looking after the interests of a plantation company in that island. Still another is an American custom-house officer in the Philippines. There is one tobacco planter in Sumatra, one coffee grower in Mexico, and one merchant and stock raiser in the Orange River Colony, in South Africa. In addition, the colonial school has sent out young men to Kamerun, Bismarck Islands, etc., as clerks in the Government service.

The instruction in the school is theoretical and practical. The course lasts two years. It is so arranged that the theoretical instruction comes in the winter and the practical instruction in the summer. The subjects chosen for lectures are those which will add to the pupil's knowledge of tropical plants and agriculture and of colonial enterprises and politics. The curriculum of study contains such branches of learning as chemistry, botany, and physics. The institution is well supplied with laboratories and has gardens for the study of forestry and vine growing. Students are compelled to learn English, while all other languages are elective.

The blacksmiths, cabinetmakers, shoemakers, and carpenters of the little town of Witzenhausen have opened up their shops to the students, who work as apprentices, so to speak, during the hours set apart for such work. The principles of all these trades are so thoroughly taught that the young colonist will be able in case of necessity to turn his hand to anything. A large farm has been purchased for the use of the school, where agriculture is studied in all its details. Gardens, vineyards, and even forest nurseries are in charge of the students. They have assisted in planting over 70,000 young trees during the past two years.

An old cloister in Witzenhausen has been purchased and fitted up with dormitories and all modern appliances for the use of the students. They associate daily with the teachers, who personally look after the welfare of their charges. The school is attended at present by 59 students. The youngest is 17 and the oldest 27 years of age.

ERNEST L. HARRIS,
Commercial Agent.

EIBENSTOCK, *May 23, 1903.*

BAGDAD RAILWAY AND GERMAN COMMERCE IN ASIA MINOR.

There exists to-day a railroad from Constantinople to Konia, in Asia Minor, which is called the Anatolian Railway. It has branches to Smyrna and Angora. German financiers have succeeded in getting a concession from Turkey to continue this route from Konia to Bagdad, and eventually through to Koweit, on the Persian Gulf. A corporation for the purpose of building the road has been formed in Constantinople, under the name of the Imperial Ottoman Bagdad Railway Company,* with a capital of $3,000,000. Its president is one of the managers of the German Bank in Berlin. The Anatolian line to Konia will not be merged in the larger concern, but its cooperation with the new enterprise has been assured. The approximate cost of the railroad is $90,000,000, and it will be about 1,800 miles in length.

It is claimed that when the enterprise is completed it will bring India three days nearer London. It will shorten by fourteen days the journey by camel train from Aleppo to the valley of the Lower Euphrates, where almost every square mile of land has its interesting ruin or hidden treasure. Speaking of the country between the Euphrates and Tigris, the Chemnitzer Tageblatt says:

> The railway will pass through one of the oldest and richest countries in the world. The most fruitful part of what was once ancient Mesopotamia is that part of the country between Ursa and Mosul. So regular and plentiful are the rains that out of every six or seven harvests only two fall short. In other portions of the country rain is not so frequent, and the soil must be nurtured by irrigation. The land is adapted to raising wheat, barley, rice, and cotton. A territory as large as Saxony and Italy together will be opened up to German markets.

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* See ADVANCE SHEETS Nos. 1219 and 1290.

To find the shortest way to India is an achievement which has occupied the attention of European commercial nations since the earliest times. The highway built by the Persian satraps, the success of Vasco de Gama in finding a water way around Africa, and the construction of the Suez Canal mark epochs in the development of European commerce with India. The construction of the Bagdad Railway will probably be fraught with equally great results, as it will not only serve as a connecting link between the Black Sea and the Persian Gulf, but it will tap a large territory which in recent times has been of practically no value to the commercial world at large.

GERMAN COMMERCE WITH TURKEY AND ASIA MINOR.

In 1901 German imports from Turkey and Asia Minor amounted to $1,642,200, or 5 per cent of Germany's total imports. During the same year Germany's exports to Turkey and Asia Minor amounted to $8,806,000, or 8 per cent of her total exports.

The following tables will give a good idea of the principal articles in the trade during 1901:

Imports into Germany.

Article.	Quantity.	Value.
	Tons.	
Fancy-colored goods	791	$141,372
Barley	8,266	221,132
Rye	5,874	148,274
Goatskins	908	173,454
Carpets	215	331,538

Exports from Germany.

Article.	Quantity.	Value.
	Tons.	
Chemicals	173	$131,376
Woven goods	689	606,662
Hosiery	253	337,960
Ironware	3,618	943,336
Cotton goods	439	400,559
Clothing, underwear, etc	36	130,468
Leather	89	211,816
Silks, mixed	22	138,516
Linens	802	1,336,846

The Anatolian Railway has already been the means of furthering German commerce in Asia Minor. Every year this railroad moves 250,000 tons of grain, 100,000 tons of rock salt, and 40,000 tons of wool from the interior to the seaboard. These same trains return with 9,500 tons of ironware from Germany, 6,000 tons of petroleum from Russia, and 4,500 tons of sugar from Austria. A direct steamship line, consisting of 20 well-equipped vessels, was established in 1889 between German and Levantine ports. A German bank was established some years ago in Jerusalem, which exchanged $15,000,000 worth of money in 1901. Many thousand German colonists are earning a livelihood in Asia Minor to-day as merchants and horticulturists.

AGRICULTURAL POSSIBILITIES OF ASIA MINOR.

The claim is put forth by many that the agricultural development of Asia Minor will relieve Germany of her dependence upon the United States for her cotton and grain supply. The following is translated from Siegmund Schneider's Deutsche Baghdad-Bahn:

> What Turkey has already sold to the world in breadstuffs is as nothing compared with what she can produce when her enormous agricultural resources have been developed. Of all agricultural states, Turkey is perhaps the only one which may be able some day to compete successfully with America in England and on the continent of Europe in this respect. Especially is this the case in the production of cotton, which is such an important factor in the textile industries of Germany, which demand $75,000,000 worth of imported cotton every year. A blockade of the Southern States to-day similar to the one from 1861 to 1865 would be a disaster which would involve the existence of at least a million German families of the working class. Germany's absolute dependence upon America and Russia for petroleum would be materially lessened if the oil and bitumen fields of Mesopotamia were rationally exploited. Unless appearances deceive, the tapping of this oil territory alone would make the projected railroad a paying one.
>
> The construction of a railway bridge over the Bosphorus, in connection with the Bagdad Railway, would create at one stroke one of the most important railroad routes in the Eastern Hemisphere. It will take an express train five days to reach Bagdad from Berlin. With proper railway facilities, one will be able to reach Tonkin from Paris in fifteen days.

The agricultural development of Asia Minor need give no American farmer or cotton grower apprehension. What India, Egypt, and Caucasia fail to do, Asia Minor will hardly succeed in doing. The influence of the Bagdad Railway will be confined chiefly to the Orient. If it leads to an increased output of grain and other necessaries of life, the capacity for consumption on the part of the 15,000,000 inhabitants of Asia Minor will, in all probability, keep pace with the production.

CITIES ON THE BAGDAD RAILWAY.

Konia.—The commercial importance of Konia at present rests upon its favorable location. It has over 35,000 inhabitants and a glove and hosiery industry of considerable extent.

Eregli.—This town is located in a territory which abounds in coal. The mines are worked at present partly by the Turkish Government and partly by private enterprise. It is hoped that the railway will give new life to this industry. As there are no other coal beds in Anatolia, only favorable transport facilities are necessary in order to supply the cities of Asia Minor with coal.

Adana.—This city is already connected with the seaport town of Mersina by a railroad. About $3,332,000 worth of cotton and grain passed over this road last year. Mersina is one of the most important seaport towns in Asia Minor, with good shipping facilities with the rest of the Levantine ports. Adana has a population of 60,000, mostly Armenians.

Tarsus.—Halfway between Adana and Mersina is Tarsus. It has 25,000 inhabitants and a flourishing trade in the chief products of Anatolia. The city is rich in buildings of ancient architecture.

Aintab.—This town is the seat of the American Evangelical Mission. It has about 30,000 inhabitants. An extensive caravan trade in cotton and leather products is carried on with neighboring cities.

Mosul.—The chief articles of commerce in Mosul and vicinity are dates, hides and skins, textiles, etc. Coffee, indigo, sugar, and dates are produced in abundance, while the number of sheep in the surrounding country is estimated at some 3,000,000 head. The exports from the city in grapes, grain, figs, and goatskins amount to $1,190,000 annually. Mosul imports $500,000 worth of English goods, chiefly from Manchester, every year. Many Turkish firms are engaged in the leather business. Mosul is the seat of Austrian, French, English, and Italian consulates.

Bagdad.—The city of Bagdad has a population of about 130,000 people. The chief articles of commerce are tobacco, carpets, silks, velvets, shawls, cloths, and drugs. The following will give a good idea of the principal goods which Bagdad imports from abroad:

From England, piece goods, chemicals, copper, lumber, ironware, candles, alum, tin, coal, and glass.

From France, sugar, quicksilver, and fancy goods.

From India and China, raw sugar, zinc, tea, and lead.

From Persia, tobacco, lemons, opium, silk goods, carpets, mohair, and wool.

The traffic of Bagdad, especially exports, is carried on chiefly by water. With a few exceptions, exported articles are taken down the River Tigris to Bassorah, where they are loaded on ocean vessels bound for India and Europe. The Tigris is navigable from Bassorah to Tekrit, halfway between Bagdad and Mosul.

The German Bagdad Railway project is occupying public attention in the Empire more than any other question at present. English capital and English cooperation are almost indispensable from the financial standpoint. There is no question that British commercial interests would be severely affected by the railway, in the beginning at least. Over 50 per cent of the foreign trade of Asia Minor is in

English hands. If the Turkish Government should guarantee the bonds of the Imperial Ottoman Bagdad Railway Company, the customs of the Empire must inevitably be raised. If the British Government should eventually send the Indian mails by this route, it would be a direct blow to the Peninsular and Oriental Steamship Company, and just at this time, when England is doing all in her power to meet the competition of the German lines and the American steamship trust, such action on her part is altogether unlikely. Yet these are elements essential to the success of the railway in the long run. The freight and passenger traffic, although it will unquestionably be large, can not of itself be sufficient.

ERNEST L. HARRIS,
EIBENSTOCK, *May 5, 1903.* *Commercial Agent.*

FISHING IN ALGERIA.

FISH.

The coast fisheries in Algeria in 1902 employed 1,106 boats and 4,710 men, about 50 boats and 325 men more than in the preceding year.

The value of the catch, which was 2,762,349 francs ($533,133) in 1901, was 2,879,191 francs ($555,684) in 1902, an increase of 116,842 francs ($22,550). Among the fish caught are sardines and bonitas. Anchovies were totally missing.

CORAL.

There was no coral fishing in the zone opened by the decree of March 15, 1899. This was due doubtless to the fact that the banks had been overworked for several years, and also to the depreciation in the market price of coral.

PORPOISES.

The question of dealing with porpoises has been a source of anxiety. All the methods of destruction employed—firearms, harpoons, Belot needles, and poisoned baits—have given poor results. The system of giving fishermen an indemnity for the loss of their nets has proved more satisfactory.

DANIEL S. KIDDER,
ALGIERS, *May 25, 1903.* *Consul.*

IRON IN THE SUDAN.

A discovery of iron ore is announced in the Bahr-el-Ghazal province of the Sudan. The analysis of specimens brought down some months ago and now in the office of Count Gleichen, director-general of the Sudan government intelligence office, gives 43.47 per cent of pure iron, which is pronounced by the authorities to be very good.

Count Gleichen, to whom I am indebted for the information herein contained, says that iron is found in the Sudan, in Kordofan, the Bahr-el-Ghazal, Darfur, and on the Abyssinian border.

Kordofan.—There are now two ore beds, one almost 60 miles to the northeast of El Obeid and the other about 60 miles to the northwest. The ore is brown hematite and is found in small fragments at a little depth in the sand. It may exist in large quantities. This iron can never be worked economically, as there is no fuel or material for building furnaces, nor could it be shipped with profit without a railway. It is not worked at present except in small quantities by the natives.

Bahr-el-Ghazal.—The Bongo country lies between 6° and 8° north latitude on the southwestern boundary of the depressions of the Bahr-el-Ghazal basin, and on the lowest terraces of ferruginous crust bordering on alluvial land. The area is about the same as that of Belgium, but it is a deserted wilderness. In 1870 it averaged only 11 or 12 inhabitants to the square mile. Much of the time of the natives is devoted to the working of iron, which is found in great abundance in Bongoland. They manufacture arms and tools of excellent quality. Their smelting furnaces are made of clay, and the iron is afterwards worked on anvils of gneiss or granite by hammers of stone or iron, rude bellows being used for the purpose. The Jur country, northeast of Bongoland, now sparsely inhabited, is the lower terrace of the ferruginous formation, from which the natives extract a large quantity of iron. They are all smiths by profession, and they produce a metal excellent in its homogeneity and malleability. Iron smelting is carried on in March, just before the sowing season.

Darfur.—Browne (about A. D. 1790) traversed the great Libyan Desert and the deserts of Nubia west of the Nile till he reached Darfur—the first European scientist to set foot in that strange country. He notes the presence of rock salt, saltpeter, and iron ore in Darfur. The method of working the latter is identical with that employed in Kordofan, but it appears to be inferior in quality and very brittle.

Abyssinian border.—Iron ore is extracted in the plains surrounding Fadassi (on the Abyssinian side of the border, south of Beni Shangul) at a considerable depth from the surface. From the description, it must be identical with the bog-iron ore encountered in Kordofan.

The Gallas, who possess large herds of cattle and a multitude of small but sturdy little horses, work this ore into iron, as in Kordofan.

The discovery of minerals in the Sudan has attracted the attention of American business men and capitalists. Inquiry has been made as to an analysis of iron ore reported by the trade journals as showing 62.1 per cent of oxide of iron, and it is with a view to correct, as far as I can, errors of this nature that I submit this report.

JOHN G. LONG,
Agent and Consul-General.

CAIRO, *May 21, 1903.*

COMMERCE OF EGYPT.

The Egyptian customs returns for the first quarter of 1903 have just been issued. The total amount of goods imported into the country during the period under review was $17,078,745, as against $14,935,760 in the corresponding period last year, or an increase of $2,142,985. The total exports during the quarter were $27,646,400, as compared with $24,282,045 during the same period in 1902, an increase of $3,364,355. The merchandise reexported was valued at $811,685 and the merchandise which passed through in transit at $960,560.

IMPORTS.

The total imports from Great Britain during the quarter were valued at $7,518,250, against $6,355,985 during the corresponding quarter in 1902, showing an increase of $1,162,265. The next largest exporter to Egypt was Turkey, imports from that country totaling $2,183,515, an increase of $203,555 over last year. France came third, with exports to the value of $2,170,795. This was a considerable increase over the figures for the first quarter last year, viz, $1,605,145. The imports from Austria-Hungary were valued at $1,247,620—a slight increase over last year. Imports from Italy amounted to $947,830, or $29,390 less than last year. Imports from Germany were valued at $628,725, as against $581,355 during the corresponding quarter last year. Imports from the United States were valued at $386,080, as against $179,870, showing that we have more than doubled.

Cotton fabrics occupy the first place in the import trade, the total amounting to $2,908,740. England furnished nearly the whole of this, viz, $2,795,175. The imports of woolen fabrics were valued at $290,805, England supplying $146,140. Cotton thread to the value of $286,375 was imported during the quarter, $227,135 of it coming from England. The imports of silk goods were $212,550, the largest proportion coming from Italy. Iron and ironmongery imports totaled $1,627,355, and over two-thirds of this came from England. The value of the petroleum imported was $338,445, the bulk of it being supplied by Russia. Flour imports were valued at $800,815, and France was the largest exporter in this line, as also in wine, the total of which was valued at $243,145. The spirits imported came to $24,185 and other liquors to $177,230, while the beer imports totaled $77,960. Soap was valued at $65,505; cheese, $135,675; butter, $62,990; candles, $67,075; boots and shoes, $109,350; and sacks, $118,640.

EXPORTS.

The exports from Egypt during the quarter amounted to nearly $28,000,000, which is an increase in value of $3,400,000 over the figures for the corresponding quarter last year, and show that Egyptian trade is recovering from the semistagnation following the cholera epidemic. As Great Britain was the largest seller to Egypt, so it was the largest buyer, the amount of its purchases during the quarter totaling $14,765,605, or $1,965,640 over last year. The next largest purchaser from Egypt was France, the value of the exports to that country being $2,270,365; then came Germany, with $2,171,765; Russia, $1,683,395; and the United States, $1,720,330, or nearly a third more than last year.

The largest exports during the quarter took place naturally in cotton. The quantity of this product exported was 1,826,170 cantars (227,723,399 pounds), valued at $23,847,310. Almost one-half went to England. Of cotton seed, 687,194 ardebs (5,285,012.8 pounds), valued at $1,984,290, were exported—629,809 ardebs (4,843,672 pounds) to England. No less than 72,148,000 eggs were exported during the quarter, representing a value of $450,930. This trade ranked next in importance to that of cotton, outdoing gum arabic, the exports of which were valued at $269,665, representing 2,246,324 kilograms (4,952,246 pounds). Nearly the whole of the eggs were taken by England, which also took one-fourth of the exports of gum arabic. The exports of onions (13,435 tons) were valued at $801,540; sugar cane, $166,265; rice, $156,420; beans, $197,280; Sudan beans, $28,770; tomatoes, $34,170; maize, $20,140; molasses, $13,880; lentils, $17,330; corn, $13,520; flour, $3,365; henna, $16,255; natural wool, $46,945; and dates, $1,680.

HARDWARE.

The hardware trade of Egypt is worth the attention of American manufacturers and business men.

The total value of ironmongery imported into Egypt for 1899 and 1901 was £88,571 ($437,806) and £125,188 ($668,234), respectively. This gives an increase of 52 per cent in two years. Great Britain increased her share of the imports by 61 per cent, Germany by 90 per cent, Austria by 72 per cent, and Belgium by 94 per cent. America, France, and Italy lessened their shares by 44, 6, and 13 per cent, respectively. Great Britain's share in 1901 was £57,784 ($285,326). Belgium came next with £36,636 ($181,092), while Germany followed with £19,364 ($95,716) and France with £15,549 ($76,859). The latter country is now supplying Egypt with articles of cutlery, tools, coffee mills, small machines, and similar goods at cheap prices, which will be likely to hold their place in the market. Belgium is the chief source of supply for bar and angle iron and sheet steel.

American manufacturers, I believe, could compete successfully in the supply of iron and steel bars, iron and steel sheets and plates, angle, bolt, and rod iron, steel girders, and nails.

French platform machines are employed throughout Egypt and seem to have the preference over others. In this line of business there is a splendid opportunity for cheap hand balances, cheap counter scales, and cheap steelyards and platform machines, with wood fittings large enough to hold a sack of cotton. In the supply of locks, bolts, and other fittings, England and Germany seem to hold the market.

The goods supplied by Germany include locks and keys of the commonest description, but serving as a means of keeping the doors and windows shut; also window bolts, hinges, window catches, hooks, hasps, and staples, door knobs of inferior pattern, and other articles of untrimmed cast iron. There should be a good opening for the better class of locks and hinges. The only reason why a fair American trade does not exist in these at present seems to be the total lack of agents, nearly all manufacturers of these goods doing business through shippers. The total value of locks, bolts, etc., imported into Egypt in 1899 and 1901 was £60,390 ($298,508) and £73,603 ($363,820), respectively, showing an increase of 22 per cent in two years. England's share fell 4 per cent, America's 13 per cent, and Belgium's 33 per cent, while Germany, Austria, France, and Italy increased their shipments by 161, 109, 13, and 122 per cent, respectively. Germany led in 1901 with goods valued at £25,194 ($124,534); England followed, with £22,925 ($113,319); France, with £13,714 ($67,788); Belgium, with £8,197 ($40,518); and Austria, with £2,307 ($11,404). If manufacturers would visit Egypt or obtain reliable agents and act upon their advice, some of the peculiar characteristics of the trade would be learned. The knowledge of climatic differences and of the habits of the people would enable American firms to send such goods to this market as are eagerly demanded.

It must be remembered that in Egypt operations are carried out by men of small means; consequently, it is but reasonable that they should select the article which will serve their purpose, though it may not be of the best quality. One of the most important laws of commerce is that merchants should supply their customers with what they want and lay aside their own ideas as to what they ought to have.

CHEMICALS AND MEDICINES.

The customs returns for the last few years show that the imports of chemicals into Egypt are rapidly increasing. The average total imports for the last five years amounted in value to $182,500, while in 1901 they rose to $329,985. Although the annual returns for 1902 are not yet published, the monthly returns for the period show that there has again been a large increase, especially during the autumn, owing to the cholera epidemic. The annually increasing demand for patent filters, disinfectants, refrigerators, laundry materials, electrical apparatus, photographic materials, and medicines gives the prospect of a corresponding increase of the chemical trade, and there is no reason why America should not gain part of it. The principal chemicals imported into Egypt are sulphuric, nitric, hydrochloric, and tartaric acids; borax, sal ammoniac, sublimate, alum, sulphates of iron and magnesia, corrosive sublimate, soda crystals, caustic soda, phenic acid, and aniline colors. According to the bulletin of the French Chamber of Commerce, the following are the current prices, f. o. b. Alexandria, of the principal articles: Borax, £15 ($73) per ton; sulphate of iron, £6 ($29.19) per ton; bicarbonate of soda, £7 6s. ($35.52) per ton; and sal ammoniac, £42 10s. ($206.82) per ton, supplied in 100-kilogram (220-pound) barrels. England supplies most of these products, as well as ammonium carbonate and sulphate of magnesium. England's supplies amount to about one-half of the whole import into Egypt. In 1899 they were $92,800 and in 1901 $156,885. France supplies most of the sulphuric, nitric, and hydrochloric acids. The value of its exports in 1901 was $56,925—nearly double that of 1899. Belgium sends most of the soda crystals, caustic soda, ammonia at 29° (for the manufacture of ice), and lead acetate, as well as several pharmaceutical and photographical requirements. Its share in the trade in 1901 was $29,915, which also almost doubled in the last two years. Germany's share in 1901 was $27,710; in 1899 it was $20,405. It has practically the monopoly of aniline dyes. Connected with the chemical trade proper is that in medicines and pharmaceutical articles. Under this heading, the total imports into Egypt in 1901 were valued at $146,085, an increase of but $25,000 in two years. In 1902 there was a large demand for anticholeric medicines and disinfectants.

All American medicines, etc., should be accompanied with simple instructions printed in the language of the country to which they are sent. Directions for articles for use in Egypt should be printed in Arabic, French, and English. Should any difficulty be experienced in carrying out this advice, arrangements should be made with the agent in Egypt to supply the printed matter in the language and wording best understood by the people here. France exported hither medicines and pharmaceutical articles to the value of $50,080 in 1899 and $54,015 in 1901. England's exports for the same years amounted to $23,955 and $44,325, respectively. Germany suffered a decrease of 50 per cent in its trade during the last two years, having fallen from $26,015 to $12,050. Austria, its rival in many articles, has increased from $9,120 to $17,006. Italy, the only other serious competitor, exports about $12,500 worth of goods to Egypt annually, but with little variation. The large number of American tourists should create a demand for certain well-known American articles, but, except in one or two first-rate pharmacies, these are often unknown. This refers particularly to soaps, patent medicines, and toilet preparations.

WINDMILLS AND PUMPS.

The great difficulty in handling American goods in this country is the time it takes to get consignments. It is unfortunate that goods can not be held in stock in order to insure quick delivery. British and European firms send large stocks to their representatives in Alexandria and Cairo, and thus have the great advantage of giving prompt delivery. Egyptian purchasers want to see in advance just what they are buying.

I have a letter now before me from a dealer of acknowledged enterprise and responsibility of Mansourah, in Lower Egypt, in which he says:

> I have been trying to push the sale of American windmills, for which I am sure there should be a good market in Egypt and the Sudan. I lost a big order last summer for the war office, because I could not guarantee delivery in time. I have one fixed on my land at the Bahr-el-Sayieh, at the end of the town, as an advertisement, showing how it can work various types of pumps—bucket, centrifugal, and archemedian—grist mills, etc.
>
> I have another at my farm working a pump for drainage, and yesterday I cabled

for two more, required for artesian wells, for which there is likely to be a demand since this late cholera scare. In most towns wells are being sunk for a supply of unpolluted water.

The wide-awake American "drummer" and direct transportation facilities would quickly give us a new and important field for trade.

MINING.

The eyes of the mining world are being turned to Egypt, and especially to the Sudan, as the possible centers of a great mining industry. Not only gold, but iron, copper, and coal are among the minerals found in the Sudan. Lord Cromer, in a recent speech at Khartoum, alluded to the prospect of finding coal in payable quantities in the Sudan. It is impossible to estimate the importance of such a discovery to the economical position of Egypt and the Sudan.

SUDAN COTTON.

The first consignment of cotton grown in the Sudan arrived in Cairo from Khartoum a few days ago. Experts who have seen the cotton report that in mercerizing qualities and in strength of fiber it is superior to the best Egyptian cotton, but that the staple is somewhat shorter. The last defect, I am informed, will probably be remedied in time by judicious crossing.

SUAKIN-BERBER RAILWAY.

The completion of the Suakin-Berber Railway, now under construction, will constitute a distinct step forward in the already rapid development of the country, as it provides a Red Sea port instead of the Nile route to the sea, as at present.

JOHN G. LONG,
Agent and Consul-General.

CAIRO, *May 2, 1903.*

FINANCIAL CRISIS IN TIENTSIN.

The financial situation in Tientsin for the last six months has been in a state of panic, owing to the dearth of ready money and the lack of confidence on the part of those accustomed to preserve the financial equilibrium of this port.

The natural result of the Boxer uprising, and the subsequent occupation of North China by the allied forces, was such universal distrust on the part of the southern merchants that the commerce of this port almost collapsed, while the Shansi bankers threw the financial equilibrium into utter confusion and panic by withdrawing their loans, which amounted to 30,000,000 taels.* This left Tientsin practically moneyless, and during the régime of the provisional government all commercial transactions were consummated by paper money, which could not be cashed except at a discount of from 25 to 30 per cent.

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*The value of the Tientsin tael was given by the United States Mint, April 1, 1903, at 55.2 cents.

In spite of these untoward conditions, the situation was beginning to adjust itself, when the city of Tientsin was handed back to the Chinese authorities. Viceroy Yuan, with the assistance of the customs taotai, went to work most energetically to improve the finances of Tientsin, but, up to the present, with indifferent success, and it is thought by many—both among foreigners and Chinese—that had no attempt been made by the Chinese officials, the crisis would never have reached such an acute stage as it has at present, as the native bankers and merchants attribute the present financial collapse to official interference, which was meant to relieve the monetary strain by fixing the rate of interest without considering the law of supply and demand. Had the officials adopted a let-alone policy, it is claimed, the exceedingly high rate of interest which then prevailed would have induced capitalists to make loans and advances to the Tientsin bankers and merchants, which would thus have relieved the stringency of the money market.

On the other hand, the officials lay the blame on the merchants. The viceroy, in one of his communications to the principal officials of Tientsin who were ordered to study the situation and devise relief measures, reviews the whole situation thus:

> Owing to the absence of good cash, which has been crowded out by a base and spurious coinage, causing universal distrust and uncertainty, and to the manipulations of certain unscrupulous speculators and bankers who cornered all the ready cash in the money market so that fabulous rates of interest prevailed, thus crippling all legitimate trade, the Official Bank was opened, with the object of suppressing the base coins and the usurious rates and in order to restore public confidence, which was all but lost.
>
> Over 10,000,000,000 good large cash* were imported from other provinces and distributed by the Official Bank in exchange for the base and spurious cash then in possession of the people of Tientsin. A fair rate of interest was also fixed by the Official Bank. By these measures, public confidence was restored during the eleventh, twelfth, and first moon. Good money was plentiful, and notes and drafts were universally current.
>
> Owing, however, to the representations of the native banking firms that the rate fixed by the Official Bank was crippling and jeopardizing the banking interest and was restricting trade, and as one of the chief objects of the bank had already been accomplished—viz, the suppression of base and spurious cash—the Official Bank was closed on the 2d of the second moon.
>
> But hardly had ten days elapsed after the closing of the Official Bank when great financial fluctuations took place, and enormous rates of interest are again demanded by the bankers on the plea of the scarcity of ready cash. On the same plea, notes and drafts are refused payment by the banks or are cashed at a ruinous discount. The universal cry is lack of ready cash. Now the question arises, What

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* 1,000 cash = 1 tael.

> has become of the large quantity of new coins turned out daily by the provincial mint and the late cash imported by the Official Bank, which should prove sufficient for local circulation? This adequate stock of circulating medium must have been exported by interested parties purposely to create the present crisis, so that they might effect their nefarious schemes of profit at the expense and ruin of the public.
>
> Measures should therefore be adopted to stop further exportation of cash from Tientsin, and the mint should be instructed to turn out as large a quantity of coins daily as possible, while the native banks should be forbidden to issue notes which they can not at all times redeem in cash. Thus only can public confidence be restored and a financial crash averted.

The viceroy, replying to a joint petition of the bankers and merchants, stated:

> The present financial difficulty is attributable to a reckless issue of notes on the part of certain banks, which were unable to meet them when presented for payment. This has created a panic by the loss of public confidence and the shutting up of the public purse, which has in turn reacted upon these bankers, so that they were unable to repay the loans of the Shansi bankers and others, thus necessitating an extension of time and increase of interest on the said loans. The official permission to the banks to issue notes was for public convenience and the facilitating of trade; but owing to the unscrupulous conduct of many of the banks, the effect has been just the reverse, entailing confusion and ruin to the people and merchants alike.
>
> Strict regulations should be adopted in the future in permitting a bank to issue notes. All issue of notes must be secured by a full reserve, equal in amount to the notes issued, or by the joint guaranty of all other banks, so that in the event of a banking firm repudiating or dishonoring its notes, all the other banks will be held responsible for full payment. By making the banks mutually responsible for each other, only trustworthy and reputable parties will be permitted by the Bankers' Guild to establish a bank, and fraudulent or excessive issue of notes will then be impossible.

While the officials and merchants were mutually placing the onus of the blame on each other's shoulders, the situation was getting worse and worse. Failures of the most reliable firms were reported daily, and it was felt on all sides that something must be done to avert a general disaster.

With this object in view, the customs taotai proposed to the foreign banks in Tientsin to relieve the native banks by the issue of 3,000,000 taels in notes bearing the taotai's chop and receivable by the foreign banks. This proposal was not, however, accepted by the foreign banks, as the guaranties offered were not considered sufficient.

After the failure of these negotiations, this most pressing matter was left in abeyance pending the return of the viceroy, which took place two weeks ago. Viceroy Yuan, with his characteristic energy, invited some of the chief merchants of Tientsin to his yamên and held repeated conferences with them, determining to get the most expert advice on this difficult financial question. Special assistance was rendered by Messrs. Woo Jim Pah and Wong Ming Wah, the well-known compradores of the Hongkong and Shanghai Bank and the

Russo-Chinese Bank. These two gentlemen have been duly appointed and empowered by the viceroy to formulate some practicable plan by which the present financial chaos may be remedied. Messrs. Woo and Wong have exhibited great public spirit and energy in the discharge of the delicate and responsible duty conferred upon them by the viceroy, and as the result of their joint deliberation the following scheme was submitted on May 2, 1903, to all the foreign bankers in Tientsin:

> That owing to the scarcity of silver, the viceroy should allow the native bankers to circulate their bank orders as usual.
>
> That the reliability of the native banks be tested by the authorities of the viceroy's Official Bank and be registered by them.
>
> That arrangements be concluded by which the foreign bankers should credit native-bank orders, upon the production by the native banks of securities satisfactory to the compradores of foreign banks.
>
> That the Official Bank put its chop on all native-bank orders that are intended to pass foreign banks.
>
> That the Official Bank and the compradores of foreign banks be equally responsible for any irregularity of these bank orders.
>
> That the viceroy stand as security to the extent of 300,000 taels* for each of the five leading native bankers.
>
> That documents of title to property or goods of the native bankers, if necessary, be lodged in the hands of foreign bankers under certain conditions.
>
> That the viceroy be requested to communicate the above conditions to the authorities of the foreign bankers.

The representatives of the foreign banks to whom these proposals were submitted gave their approval and support, with the exception of one who expressed his conviction that under the present financial conditions prevailing in Tientsin, operations could be conducted with safety only on a cash basis. The other foreign banks are ready to adopt this practicable scheme, which has been formulated by men of approved ability, experience, and financial acumen. The banks are prepared to credit approved native orders which are satisfactory to their own compradores and have the chop of the viceroy's Official Bank.

The circulation of these native-bank orders, which will be under the triple guaranty of the native bank, the viceroy's Official Bank, and the compradores of the foreign banks, will mean the revival of trade not only of Tientsin, but of North China, the return of public confidence, and the commercial prosperity of the port, all of which have been seriously endangered through the prolonged financial crisis which threatened to engulf everyone in ruin; but it is now felt that the right remedy has been applied and an era of commercial prosperity and expansion will dawn upon the cruelly tried emporium of North China.

JAMES W. RAGSDALE,
Consul-General.

TIENTSIN, *May 7, 1903.*

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*The value of the Tientsin tael was given by the United States Mint, April 1, 1903, at 55.2 cents.

THE OSAKA EXHIBITION.

Consul S. S. Lyon transmits from Kobé, May 14, 1903, newspaper clippings descriptive of the Osaka exhibition, from which the following extracts are taken:

The National Industrial Exhibition at Osaka has now been opened to the public for two and one-half months, and the attendance of the public and other indications prove that it will be the most successful of the five industrial exhibitions that have been held in Japan.

Japan has not yet had an international exhibition in the full sense of the term, but this year foreign countries have been granted a limited space to exhibit samples of their produce. It is curious that the two countries which have taken advantage of this to the greatest extent are both colonies, to wit, Canada and Netherlands India. The State of Oregon has a good exhibit, and Australia is included in the foreign section, though we believe the Government of that country would have largely participated had it been possible to allot more space.

NETHERLANDS INDIAN EXHIBIT.

In the Netherlands Indian section is an excellently made model of a Javanese lighter with sails set, built of native teak, about 5 feet long and 1½ feet deep. There is also a handsome and elaborately carved five-fold screen of sono wood. The wood is of the color and appearance of unstained oak, and the native carving resembles very closely the best carved-oak panelwork at home.

The greatest amount of space is probably devoted to native works of art. There are wooden idols; brass articles worked in artistic designs, such as decanters, bowls of all sizes, spittoons, vases, kettles, betel boxes, and strange utensils for which we can not find a name; a variety of bangles, bracelets, earrings, buckles, and hairpins; cigar cases, cigar holders, ash trays, penholders, paper knives, teapots, tea canisters, bread baskets, bottle stands, slippers, card boxes, glove boxes, and portières. The cigar cases and other boxes are made of gutta-percha, tin, and other material, and are shown with the object of giving strangers to the colonies some idea of the extent of the native skill in handicrafts. In what might be termed the drapery department are exhibited sarongs (a sort of loose indoor gown for women), many sorts of sashes of silk and other stuffs, shirts, skirts, head cloths, and antimacassars.

The government's exhibits consist of a series of maps made by the topographical office, showing the military, economical, and geographical position and advantages of the colonies. The government's railways, coal and tin mines, and salt works are represented by their products, etc. In agriculture and forestry, especially, the government sends many valuable samples, of which the following is a list: Caoutchouc, gutta-percha, cinchona bark of many varieties from the government's cinchona estates, and cinchona-bark cuttings. The system of the cultivation of cocoa is explained in a variety of exhibits of cocoa trees, cocoa pods, and different quality pickings.

We ought not to close this article without making mention of the catalogue of the Netherlands Indian exhibits that has been prepared with such trouble and expense by Mr. H. Rud. du Mosch, of Batavia, vice-president of the exhibition commission. The work has 200 large pages and consists of English and Japanese text. It will prove a useful work of reference on the Netherlands India for years to come.

AUSTRIAN EXHIBIT.

The largest independent section representative of a foreign country at the Osaka exhibition is occupied by Austria. A subsidy was granted by the Austrian Government, in order that the exhibits might be as representative as possible of the industries of the country.

A large hall is devoted to machinery. The exhibit which causes perhaps most interest is the ice compressor, or refrigerating machine, with its pipes covered with hoar frost leading to the cold chamber. Austrian champagnes and other wines have their temporary home in the cold chamber. Just opposite is an electric wire-making and cord-making machine, the great advantage of which is that it may be stopped instantaneously even though the machine is working at full speed. A large printing machine, specially prepared for the execution of half-tone work and illustrations in colors, is near by. One of its features is an automatic register by which it may be seen at a glance how many copies have been printed. The rollers of this machine are very numerous, with a view to affording full distribution of the ink, and it should be well adapted to its purpose of printing illustrations. A Vienna firm shows bookbinding, cardboard-cutting, perforating, gold-printing, and embossing machines, etc. Perhaps the most complete model in the exhibition is a sawmill. Through the tiny windows the visitor may see the miniature machines at work—the steam engines in one room, sawing and planing machines in others, the repairing room, drilling machines, and below, in the basement, the shafting. The whole of the little building is lighted by the tiniest electric arc lamps. No detail has been omitted.

There is a big display of well-finished Austrian steel-iron steam and water pipes and sugar-loafing molds, for which it is claimed that they are cheaper than cast iron, while lasting quite as long. Fire bricks, made of cork and composition, and machines for corking bottles and fitting capsules thereto are shown.

A fire engine similar to that which gained a gold medal at Paris in 1900, with capacity for pumping to a height of 200 feet and capable of getting up full steam within seven minutes, is exhibited. There is an arrangement on the engine by which water may be pumped by hand while steam is being got up, so that not a moment need be lost, and three lengths of hose may be used at the same time. A hand pump is also on view, a miniature one which may be carried on the shoulders. This is exceptionally useful for fires occurring in places where the fire engine can not get to. All the parts are made of a very light mixture of metal called "magnolium," and there should be a good demand for a pump of this kind in Japan. There is a novel display of filters. The simplest are earthenware bottles constructed almost up to the neck of a porous material. All that is necessary is to dip the bottle into a larger vessel, or a pond or river, and the water will percolate through and fill the bottle, the material being so made that the water will be retained in the bottle, and when poured out will be fit to drink. Pumps suitable for army use are similarly constructed, by means of which water may be pumped from a river and filtered at the same time.

In the machinery section of the Foreign Samples Building, Austria has some powerful wood-working, planing, and sawing machines, the operations of which attract crowds of interested spectators. A planing machine, the wheel of which can be made to turn 3,000 times a minute, can be used for boring purposes as well, and is said to be capable of doing half a day's work by hand in five minutes. A powerful forge machine is on view, which will hammer hard metal as thin as paper in an incredibly short space of time.

In the industrial part of the foreign-samples section are to be seen Austrian carriages and all kinds of smaller articles; trays, etc., of metal ware; tins of tempering powder; samples of cigarette paper and tins of Anglo-Austrian condensed milk. Specimens of Moravian malt and hops are on view, and these, it may be added, are used in the brewing of some of the most famous of the Japanese beers. There are varieties of paper, enameled ware, glassware, electric lamps, cigars, furniture, and works of art in terra cotta.

OTHER EXHIBTS.

Among the foreign firms represented at the Osaka exhibition is the firm of Messrs. Bruhl Frères, of Kobé and Yokohama. This firm shows machinery of various types, motor-propelled vehicles, bicycles, typewriters, etc., for all of which Messrs. Bruhl Frères are the agents in Japan. The principal exhibit is a set of hot-air engines, shown in operation in a special building just outside the exhibition compound, close to the main entrance. In this building there are five Rider & Ericsson hot-air engines in motion, and they are used for pumping water from the fountain opposite the main entrance to the exhibition and delivering it some 500 feet distant to a waterfall, which has an elevation of about 15 feet and falls into an artificial lake. In the same building the firm shows the well-known Edson diaphragm pumps, the particular interest of which lies in the fact that one man can pump 6,000 gallons of water an hour, raising it from a ditch about 10 feet deep. These pumps in operation prove of great interest to visitors.

The other exhibits are in the Foreign Samples Building. Here there is on exhibition the latest model of the Oldsmobile type of motor car. There are also 1903 models of the Thomas motor cycles, and an Orient touring motor cycle, made by the Waltham Manufacturing Company. In this exhibit there are three of the latest models of the Leroy cycles, finished in nickel plate.

In the machinery section of the building, Messrs. Bruhl Frères exhibit the Springfield-Gould direct-coupled pumping outfit. This apparatus may be described as a gasoline engine directly coupled with a triplex pump, and when in motion the machine takes water from a tank at the rate of 50 gallons a minute. There is also in operation a powerful motor engine named the Wolverine Marine, of sufficient power for driving a launch 20 feet in length. A most interesting exhibit is the Edson pile-sinking apparatus, by which piles are driven into holes excavated by the great pressure of a stream of water ejected from the apparatus.

The firm calls particular attention to the fact that the articles exhibited are not dependent upon any outside power for driving. They are either to be operated by hand or by some generating power which accompanies the machines—an arrangement which allows the use of the machinery where steam or electric power may not be obtained.

QUININE AUCTION IN BATAVIA.

The fourth sale of quinine by public tenders for the year 1903 was held at this city on the 29th ultimo, and the following were the transactions of the day:

There were put up for sale 4,762.8 kilograms (10,500 pounds) of sulphate of quinine, Editio II, packed in lots of 11.34 kilograms (25 pounds), of which only 45.36 kilograms (100 pounds)—four lots—were disposed of at 20 florins ($8.04) per kilogram (2.2 pounds).

The other bids being below the price limit, the remaining quinine was withdrawn until the next sale.

The price realized—20 florins ($8.04)—is equal to the unit price of 0.0775 florin (3.12 cents) for the bark at the Amsterdam market.

The total shipments of quinine for the month of April are reported to have been 1,074,973 kilograms (2,369,885.4 pounds).

The next sale will be held on the 27th instant.

B. S. RAIRDEN,
Consul.

BATAVIA, *May 5, 1903.*

NOTES.

The Question of Dutiable Values in the United States.—Consul-General F. H. Mason writes from Berlin, June 16, 1903:

German exporters of manufactured goods are preparing to make a united and vigorous protest against the methods of determining dutiable values which are practiced by the appraisers' department of the United States Treasury. A circular has been issued to exporters throughout the Empire in which they are each invited to send to the central association—"Der Bund der Industriellen"—a statement of their grievances. The text of the circular is herewith translated, as follows:

1. Have you had difficulties in making imports into the United States by reason of the market values as fixed by the appraisers?
2. In the determination of dutiable values, was the German or the American market price of the goods taken as the basis or standard?
3. Were the dutiable values of your merchandise decided to be higher than you had declared them in your invoices?
4. Have you made appeal to the Board of General Appraisers, the collector of customs, or the Secretary of the Treasury against such advances in duty value?
5. Was the proceeding (of the appraising officers) a legal or an arbitrary one?
6. Have you been wronged or injured by the arbitrary decision of dutiable values on the part of American officials, and, if so, to what extent?

It is intended that the replies to these interrogatories shall be classified, formulated, and used as proofs to support a protest against the present system of appraisement.

German Chemical Factory.—Consul-General Richard Guenther writes from Frankfort, May 18, 1903:

The largest factory of chemicals in the world is said to be the aniline and soda establishment of Baden, in Ludwigshafen-on-the-Rhine. The works employ 148 scientific chemists, 75 technical engineers, 305 clerks, and more than 6,000 workingmen. There are 421 buildings for factory purposes and 548 dwellings for laborers and 91 for officials. One hundred and two boilers furnish steam for 253 engines with 12,160 horsepower. Gas is extensively used as fuel. Five large steam hoists on the banks of the river are used for loading and unloading. The works own a vessel, with a capacity of 600 metric tons, for the transportation of sulphuric acid. A network of railways, having a total length of 27 miles, connects with the State railroad system. Three hundred and eighty-seven cars are owned by the factory.

Alkali Discovery in Germany.—Consul B. H. Warner writes from Leipzig, under date of May 28, 1903, that new alkali deposits have been found in the province of Saxony, Germany. Test holes were bored by the Grossesterhausen sugar factory and by the Prussian Government, with the understanding that the first to strike alkali deposits was to have the option on a tract of 568 acres. The results have shown that a new field of considerable commercial importance will soon be opened.

Regulations for Electric Cars and Automobiles in Leipzig.—Consul B. H. Warner sends the following from Leipzig, May 26, 1903:

Municipal ordinances prescribe that electric street cars shall not run at a higher rate of speed than 9 miles an hour in the business sections; with trailers, 7.2 miles; in residential sections, 10.8 miles an hour, or 9 miles with trailers; and in the suburbs, 15 miles, or 12 miles with trailers. The penalty for exceeding the speed limit is a fine up to $15 or imprisonment for fourteen days, or both. In case of accident, a higher penalty may be inflicted.

The city council, at a recent meeting, passed an ordinance prohibiting the use of automobiles in most of the streets of the inner city, and in other parts allowing them to be driven only along those streets which are traversed by electric cars.

Powerful Steam Dynamo in Germany.—Consul-General Richard Guenther, of Frankfort, under date of May 29, 1903, says:

The rapid development of electric central stations in Germany has resulted in the construction of powerful dynamos. The Rhenish-Westphalian Electricity Works at Essen has ordered from the Brown-Bovert Company at Mannheim a steam turbine to furnish power for a dynamo of 5,000 volts and one for 1,600 volts. These two electrical machines will require about 10,000 horsepower. The whole apparatus occupies a space less than 9 feet in height and width and about 60 feet in length. The 10,000-horsepower turbine has a length of only about 21 feet.

Power Plant in Saxony.—Consul B. H. Warner, of Leipzig, under date of May 26, 1903, says:

The Berliner Elektrizitätsgesellschaft proposes to erect a large central electric-power plant at Crimmitzschau, Saxony, to furnish power to electric-lighting companies, street-railway companies, and factories. Crimmitzschau and Werdau are but 6 miles apart, and the country between them is almost covered with manufacturing enterprises.

New Locomotives for Prussian Railways.—Consul B. H. Warner, of Leipzig, informs the Department, May 20, 1903, that the Prussian Government has just placed an order for 317 locomotives, of different kinds, with the firms that have heretofore built engines for the State railways. They are to be delivered by April 1, 1904. In a later report, the consul adds that 476 passenger cars, 62 baggage cars, and 3,920 freight cars have also been ordered. It is said that these cars, which have about three-tenths the carrying capacity of those used in the United States, represent the regular needs of the Prussian railroads for 1904. The orders are given this year on account of the lack of work in the car shops.

New Freight Railway in Germany.—Consul B. H. Warner, of Leipzig, June 4, 1903, writes that the Prussian Government has granted a franchise to a joint-stock company to build a freight railroad about 3 miles long from Mühlberg, on the Elbe, to Burxdorf, on the main line of the Berlin-Riesa-Dresden Railway. The estimated cost of the roadbed, exclusive of the ground—which has been donated by the city of Mühlberg—is 625,000 marks ($148,751). It is claimed that the new line will considerably increase the importance of Mühlberg as a river port, by diverting a portion of the traffic between Hamburg and points in central Germany in the vicinity of the Elbe River

Railroad in the Harz Mountains, Germany.—Under date of May 27, 1903, Consul B. H. Warner, of Leipzig, reports that the Prussian Government will build a railroad across the Harz Mountains, from Eisleben to Rottleberode via Wippra and Stolberg, a distance of about 50 kilometers (30 miles). Work will soon be begun.

German Railway Supplies for Italy.—Consul B. H. Warner reports from Leipzig, May 23, 1903, that the Mediterranean Railroad Company has just awarded contracts for building 8 locomotives, with tenders, at 65,049 lire ($12,554.46) each, to a Cassel firm; 12 four-wheel baggage cars, at 9,200 lire ($1,775.60) each, to a Dessau firm; 50 freight cars, without brakes, at 3,250 lire ($627.25) each, to a Gotha factory; and 15 four-wheel passenger cars (second class), at 18,465 lire ($3,563.75) each, to a Brussels house.

Losses of German Ocean Vessels.—Under date of June 20, 1903, Consul-General R. Guenther, of Frankfort, reports that, according to German imperial statistics, the losses of German registered ocean vessels during the year 1900 were 85, of 57,078 tons gross and 44,720 tons net. Of these, 32 stranded, 2 capsized, 14 sank, 11 were lost in consequence of collisions, 9 as the result of severe damages, and 17 have never been heard of. Of the 1,073 persons aboard the foregoing—982 of which were members of crews and 91 passengers—3 passengers and 286 members of the crews lost their lives, or a total of 289 fatalities.

New Iron Mill in Germany.—Consul B. H. Warner writes from Leipzig, May 20, 1903, that the Haspe Iron and Steel Company (located at Haspe, Westphalia) has completed a plant for the manufacture of hoop iron. The company is capitalized at 4,265,000 marks ($1,015,070). It was organized in 1894, and since that time has paid its shareholders 74½ per cent in dividends—only 2 per cent, however, in the last two years.

Trusts in Germany.—Consul-General J. H. Worman, of Munich, May 9, 1903, reports that the executive committee of the German Handelstag—*i. e.*, the Imperial Board of Trade (Ausschuss des Deutschen Handelstages)—has, upon the suggestion of the Chamber of Commerce at Stuttgart, requested all chambers of commerce in the Empire to pay particular attention to trusts (kartelle) and syndicates, noting with special care and minuteness everything that speaks for or against the organization of trusts, and to report to the Handelstag their gathered experience, as well as the opinions required from these observations. Upon the basis of these reports the Handelstag will deliberate upon the proper course of action to be pursued in the interest of German industry and commerce.

Condition of German Jute Industry.—Under date of May 29, 1903, Consul T. J. Albert, of Brunswick, reports:

The Union of the German Jute Industry was organized to establish an equilibrium between the demand and the production of the jute factories. For this purpose, the union has in the last two years put out of service 22,830 spindles and 1,148 looms. Many members of the union have also voluntarily put out of service 4,110 spindles and 247 looms, so that the reduction amounts to 26,940 spindles and 1,395 looms, or more than 20 per cent of the entire number in the union. In spite of this, there exists to-day a large overproduction of jute in Germany.

City Employees in Leipzig.—Consul B. H. Warner writes from Leipzig, June 3, 1903:

The Leipzig city council has passed an ordinance compelling those employed in the various departments of the city government to take up their residence within the city limits on or before the 1st of January, 1905. As the waterworks, lighting plants, storage warehouses, markets, pawn shops, hospitals, etc., in addition to those departments under city control in the United States, are municipal institutions, a large number of people will be affected by this ordinance. It is said that this action was taken in order to foster Leipzig's growth, to increase the city's income, and to concentrate the conservative vote.

German Meat-Inspection Fees.—Consul J. E. Kehl transmits from Stettin, May 29, 1903, translation of a newspaper article in regard to the burdensome results of the new meat-inspection act, which reads, in part:

> Importers have informed us that at certain places the inspection and examination lasts three or four days. At one of the Berlin custom-houses, there recently arrived from Budapest 42 barrels of salted guts, for which an inspection fee of 178 marks ($42.36) was paid. The fees practically prohibit importation, and the people who eat sausage are subjected to a new indirect tax.

Selling Eggs by Weight in Germany.—Consul B. H. Warner writes from Leipzig, May 28, 1903:

The provision officials of Prussia have been petitioned to have eggs sold, in the future, by weight instead of by number. The object is to protect German poultry breeders against those of foreign countries, German eggs weighing, on an average, from 38.58 to 51.44 pwts., while those imported weigh from 25.72 to 32.15 pwts.

German Sugar in England.—Consul B. H. Warner reports from Leipzig, May 27, 1903:

There has been a decided decrease during the last few months in the quantity of beet sugar exported from Germany to England, the loss amounting for the first quarter of 1903 to almost 63,000 long tons in raw sugar alone. England has, it is true, a considerable stock from 1902; but another reason for the decrease is that larger quantities of cane sugar have been imported from the English colonies. Cane sugar is also being bought from Cuba, a thing which has not been done for twenty-five years.

European Sugar-Beet Cultivation.—Consul Walter Schumann writes from Mainz, May 13, 1903, as follows:

The following table, regarding European sugar-beet cultivation for the season of 1903 as compared with that of 1902, has been compiled and published by the International Sugar Statistical Association as the result of a general inquiry made between the dates of April 29 and May 9:

Country.	Factories.	Area under sugar-beet cultivation.				Increase.	Decrease.
		1903.		1902.			
	Number.	*Hectares.*	*Acres.*	*Hectares.*	*Acres.*	*Per cent.*	*Per cent.*
Germany	385	412,093	1,018,282	429,341	1,060,902	....	4
Austria-Hungary	215	306,610	757,633	304,000	751,164	0.8	....
France	299	224,200	553,998	238,100	598,345	....	5.8
Russia	277	564,873	1,395,801	597,372	1,476,106	....	5.5
Belgium	99	57,500	142,083	52,300	129,233	9.9	....
Holland	29	40,343	99,687	31,035	76,687	3	....
Sweden	17	28,732	70,997	24,118	59,596	19.1	....
Denmark	7	14,700	36,324	14,700	36,324	....	....

German Electrical Goods for Russia.—Consul B. H. Warner sends the following from Leipzig, May 28, 1903:

German electrical interests are petitioning the Government officials to arrange for making a new commercial treaty with Russia for lower duties upon German electrical supplies. At the present time about 20,000,000 marks' ($4,760,000) worth of electrical goods are exported to Russia from Germany annually, and the amount is increasing from year to year.

Coal Mining in Poland in 1902.—Consul-General W. R. Holloway sends from St. Petersburg, May 15, 1903, figures published by the Messenger of Finance concerning mining in Poland, as below:

During the last year 36 mines furnished coal, and 305 steam engines were employed. The total production amounted in 1901 to 252,566,787 poods (410,678 tons) and in 1902 to 258,169,482 poods (419,787 tons). Besides pit coal, brown coal was mined in Poland in the district of Zavertze in 4 mines during 1903. The total quantity of brown coal produced in 1901 was 1,040.6 tons; in 1902, 895.8 tons.

American Typewriting and Salt-Mining Machines Wanted.—Under date of June 15, 1903, Consul C. R. Slocum, of Warsaw, reports that inquiries have been made at his office for typewriting machines of the description known as "visible writing" and for salt-mining machinery for evaporating processes. Two of the best-known makes of typewriters—one of them the "visible" class—are represented at Warsaw by agents, but the demand seems to be for those which retail at a lower figure. It is particularly desired that prices be quoted c. i. f. Danzig, Germany, and that net and gross weights be carefully stated.

Wheat Prospects in Russia.—Consul-General W. R. Holloway writes from St. Petersburg, May 15, 1903, that, according to data compiled by the Ministry of Agriculture, the outlook for wheat in European Russia is satisfactory. Winter wheat is fair, especially in the southern provinces. The spring has been unusually mild.

Olive Oil in Italy.—Consul-General H. de Castro sends from Rome, May 19, 1903, a letter from the president of the United Chambers of Commerce of Italy which says, in part:

> I take the liberty of calling attention to a report from a consul in Spain which appeared in No. 1589 of the ADVANCE SHEETS OF CONSULAR REPORTS on March 9 last. It is asserted therein that Italian oil exporters, in the years of short crops, import oil from Spain, mix it with American oil, and export said mixture to the United States as an Italian product. Considering that foreign oil is charged in Italy an import duty of 6 francs per 100 kilograms ($1.16 per 220 pounds), and that no drawback is allowed for reexportation, it is difficult to perceive the advantage Italian commerce could derive from such a process. As far as this year's crop is concerned, I must observe that, although it is inferior to the average of the last four years, it has exceeded the Spanish crop and it would thus seem more rational for Spanish exporters to come to Italy for their requirements.
>
> It is a fact that Italy buys at irregular times, when her crops run short, some olive oil from Spain—this, however, in small proportion compared with her own exportation. As the oil so imported is subjected to duty and is generally lower in price than the Italian product, said imported oil must necessarily be used for home consumption. It is natural that Italian producers should export the finer product in order to enable them to compete with the producers of other countries.

The consul-general adds that he has personally studied the oil industry in Italy and has never found that the product was adulterated for exportation purposes.

Sicilian Lemon Crop.—Consul Alexander Heingartner reports from Catania, May 16, 1903:

The summer lemon crop in this consular district promises well. The fruit is of very good quality, although, owing to the dry winter, dirty in appearance. The crop is about the same as last year; the amount for export is estimated at 140,000 boxes (300 in a box); prices, 10 to 12 lire ($1.93 to $2.23), according to quality. Freight rates to New York, per box, are 1s. 3d. (30.4 cents).

Spanish Request for Brick-Making Machinery.—Under date of May 30, 1903, Consul-General Julius G. Lay, of Barcelona, informs the Department that he is in receipt of a letter from Mr. Agustin Palomar de la Torre, of Saragossa, which states that he has been appointed to establish the pottery industry in that city, and, having heard of the excellent quality of the machinery manufactured by American firms, he desires to learn the names and addresses of American manufacturers of machinery for making bricks, tiles, and other ceramics. The consul-general suggests that the inquirer be addressed direct, in Spanish or French, sending catalogues and quoting prices, if possible, c. i. f. Barcelona. Freight rates can be ascertained from Ceballos & Co., 80 Wall street, New York, agents of the Spanish Transatlantic Company, the steamers of which leave New York for Barcelona about the first of every month.

Copper Production in Hungary.—Consul F. D. Chester sends the following from Budapest, May 15, 1903:

There were mined in Hungary, in 1901, 161,547.8 metric tons* of copper, the value of which was 236,565.31 crowns (say $47,313.06). The quantity produced in the preceding calendar year was some 20 tons greater. Formerly, 80 per cent of the copper was mined by the Government, but in the past year only 50 per cent was so mined. There are at present 16 copper-mining concerns in Hungary, of which two State and three private undertakings supplied the greater part of the metal.

Commercial Policy of Hungary.—Consul F. D. Chester reports from Budapest, May 23, 1903:

It is reported that Hungary intends to impose countervailing duties on American manufactured goods, or at least to demand the termination of the commercial treaty of 1829 and the substitution of a reciprocal in place of a most-favored-nation convention, similar to that concluded by the United States with France.

The export of sugar from Hungary to the United States ceased last year. In concluding a reciprocity treaty with the United States, Hungary will lay more stress on her export of glassware, majolica, hand embroideries, bent-wood furniture, rubber toys, tobacconists' ware, etc., than on the articles paying specific duties, viz, mineral water, wine and brandy, beans, tobacco, and wool. It is to be feared that the United States will have difficulty in securing tariff rates as low as those now prevailing under the favored-nation clause, or as low as those granted to the manufactures of Germany and Switzerland.

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* 1 metric ton=2,204.6 pounds.

Combine of Shipbuilders on the Tyne.—Consul H. W. Metcalf reports from Newcastle-on-Tyne, May 21, 1903, that an amalgamation of shipbuilding firms on the River Tyne, with the control of other kindred establishments, is proposed. The firms interested are Messrs. Swan & Hunter, the builders of several large floating pontoon docks and also of the Cunard liners *Ivernia*, *Ultonia*, and *Carpathia*, and Messrs. Wigham, Richardson & Co., also builders of fast passenger steamers, principally for continental account.

Catalogues of Coffee and Lime Machines for Johannesburg.—Consular Agent W. D. Gordon writes from Johannesburg, June 1, 1903, that if manufacturers will send him catalogues, etc., of machinery for the preparation of coffee and lime for the market he will place them in the hands of interested parties.

Australian Customs Regulations.—Consul-General J. P. Bray writes from Melbourne, May 17, 1903, that the following notice was published in the Commonwealth of Australia Gazette of May 16:

> Whereas by the customs act, 1901, it is enacted that all goods the importation of which may be prohibited by proclamation are prohibited imports; and whereas it is desirable to prohibit the importation into the Commonwealth of hop aromas, hop oil, hop extracts, hop flavors, and hop bouquets, whether simple or compounded in any manner with other material used in any brewing process or for addition to beer: Now, therefore, I, the governor-general, acting with the advice of the federal executive council, in exercise of the powers conferred upon me by the customs act, 1901, do hereby prohibit the importation into the Commonwealth of hop aromas, hop oil, hop extracts, hop flavors, and hop bouquets, whether simple or compounded in any manner with other material used in any brewing process or for addition to beer.

The following order, adds Mr. Bray, has been issued by the comptroller of customs:

> In view of the number of cases which have occurred in which advertising matter is discovered in packages, though no mention of it is made in the invoice, the acting minister directs that action be taken in regard to all advertising matter not shown in invoices and the goods forfeited by the department. Importers should be careful to see that all advertising matter is shown in the invoice.

The forfeiture applies to the advertising matter in the packet only.

Trade Request from Melbourne.—Under date of June 6, 1903, the Bureau of Foreign Commerce has received a request for samples of native American products suitable for the manufacture of varnish: Ten pounds' ($48.66) worth of waxes of all kinds, gums, wax berries, resins, natural dye woods and berries, and the like. No manufactured article will be accepted. These goods are to be sent to Melbourne, Australia. Directions for their delivery at New York may be obtained by addressing George Rogers, Son & Co., 22 Gt. St. Helens, London, England.

Coal Prices in New South Wales.—Consul F. W. Goding reports from Newcastle, May 2, 1903, that a majority of the coal-mining companies in the district have agreed that from May 15 the price of coal shall be 10s. ($2.43) per ton (a reduction of 1s., or 24 cents), and, according to the provision of the sliding scale, the hewing rate is to be reduced from 4s. (96 cents) to 3s. 10d. (92 cents) per ton. It is significant, he adds, that the four collieries having the greatest output refuse to make the reduction.

Preparing Peat for Fuel in Ontario.—Consul M. J. Burke, of St. Thomas, Ontario, under date of June 22, 1903, transmits the following paragraph from the Toronto Globe of June 13, 1903:

> The great importance of the fuel question has led the bureau of mines to take a special interest in peat, lignite, and other kinds of fuel found in Ontario. A bulletin has just been issued describing the most modern and improved methods of preparing peat for fuel, and also how to burn it to advantage.

Tax on Dynamite and Powder in Mexico.—Under date of June 8, 1903, Consul W. W. Canada sends from Veracruz copy (printed) of a decree relating to the manufacture of smokeless powder and dynamite in Mexico,* as follows:

> ARTICLE 1. The Executive is empowered, in accordance with the contract entered into by the Department of Fomento with the Compañia Nacional de Dinamita y Explosivos, S. A., to establish an internal consumption tax on all kinds of dynamite and industrial explosives imported from abroad or manufactured in the Republic, said tax to be payable when and as the Executive may determine.
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> ART. 2. The basis for the creation of said interior consumption tax will be as follows:
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> I. Dynamite and industrial explosives, entered through the custom-houses of the Republic, will pay $210 ($94.50 gold) per ton of 1,000 kilograms (2,204 pounds) gross weight.

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*ADVANCE SHEETS No. 1242 (January 18, 1902).

II. Exemption from said tax may be allowed in the case of common gunpowder, black gunpowder for mines, and gunpowder for fireworks or for hunting purposes in the composition of which the only ingredients used are sulphur, carbon, and the nitrates of soda and potash, and not nitroglycerin, chlorate of potash, or other chemical explosive.

III. The Compañia Nacional Mexicana de Dinamita y Explosivos, S. A., will pay the internal consumption tax on the products which it may manufacture, in the form and subject to the conditions provided by the contract which it made with the Department of Fomento on August 12, 1901.

Mexican Tariff on Ferromanganese.—Consul W. W. Canada reports from Veracruz, June 8, 1903:

The Mexican Government has reduced the import duty on ferromanganese with the view of encouraging the manufacture of steel by modern methods in the Republic. Ferromanganese containing 25 per cent or more of manganese was formerly subject to a customs duty of $5 per 100 kilograms (5 cents silver, or about 2.25 cents gold, per 2.2 pounds) gross weight; the new rate of duty has been fixed at $1.50 per 100 kilograms (1.5 cents silver, or 0.67 cent gold, per 2.2 pounds) gross weight.

Mexican Commercial Museums Abroad.—Consul W. W. Canada, of Veracruz, under date of June 8, 1903, says:

The Department of Public Improvement of the Mexican Government has under consideration the advisability of establishing commercial museums in connection with the more important consulates in foreign countries. Through the efforts of the Mexican consul at Liverpool, England, an exposition of the products of Mexico is about to be inaugurated at that place. The governors of the several States have been requested to forward samples of the principal productions of their respective sections. Precious woods, fibers, cereals, vanilla beans, coffee, sugar, etc., are to be sent at once to the consulate at Liverpool.

The Mexican exposition at Milan, Italy, is in complete working order. Its large and commodious rooms are visited daily by merchants and manufacturers, who thus come in direct communication with the Mexican producers.

Government Purchase of Railroad in Mexico.—Consul-General A. D. Barlow reports from Mexico City, June 6, 1903, that the Mexican Government has purchased a controlling interest in the National Railroad—one of the two lines from that city to the frontier.

Failure of Corn Crop in Yucatan.—Consul W. W. Canada, of Veracruz, under date of June 8, 1903, says that recent reports from Yucatan indicate a failure of the corn crop of that section. A certain disease is destroying the corn in the fields, and all the efforts of the agriculturists have been powerless to stamp it out. A shortage of supply, the consul notes, should be expected from that region for the coming season, and it would be well for our exporters to keep a close watch on that market.

Quay Duties at Pointe a Pitre, Guadeloupe.—Consul L. H. Aymé, of Guadeloupe, under date of June 10, 1903, says:

A decision of the Court of Cassation of France, recently made public, declares the quay duties collected at Pointe a Pitre to be illegal. These duties were imposed about forty years ago by a local regulation. In 1900 a notice in the Journal Officiel fixed the following rates:

Parcels, whether grouped or not grouped.

Description.	Tax per parcel.	
	Francs.	*Cents.*
1 to 100 kilograms (2.2 to 220.4 pounds)	0.15	2.89
101 to 200 kilograms (222.6 to 440.9 pounds)	.25	4.82
201 to 300 kilograms (443.1 to 661.3 pounds)	.35	6.75
301 to 400 kilograms (663.5 to 881.8 pounds)	.45	8.68
401 to 500 kilograms (884 to 1,102.3 pounds)	.55	10.61
501 to 600 kilograms (1,104.5 to 1,322.7 pounds)	.65	12.54
601 to 1,000 kilograms (1,324.9 to 2,204.6 pounds)	.75	14.47
Over 1,000 kilograms (2,204.6 pounds) for each 100 kilograms (220.4 pounds)	.10	1.93
Horses per head	1.00	19.3
Asses	.50	9.65

It has now been decided that the duties were illegal, and an attempt will be made to establish new and legal rates, which, however, will be much more moderate.

Wireless Telegraphy in Guadeloupe.—Consul L. H. Aymé, of Guadeloupe, under date of June 10, 1903, says:

The wireless-telegraph system in operation between this island and Martinique* has been thrown open for the use of the public. Messages are transmitted from this city and other points to the station at Gosier by telephone. The tariff of rates is practically that of the French Cable Company, the lines of which have been broken for some sixteen months. The service is satisfactory, an average of 60 messages each way being transmitted daily. There are, of course, occasional interruptions, due to weather conditions, but these are not frequent.

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*See Advance Sheets No. 1580 (February 26, 1903).

Concession to Manufacture Soap and Candles in Honduras.—Consul William E. Alger, of Puerto Cortes, informs the Department, June 10, 1903, that the Congress of Honduras has granted a concession to an American citizen to manufacture soap and candles, with the privilege of importing all raw material duty free for a period of ten years.

Consular Invoices in Salvador.—Consul-General John Jenkins sends from San Salvador, May 28, 1903, translation of a decree which provides that the law of consular invoices of May 30, 1900, shall be repealed and the law of April 3, 1900,* reenacted.

German Sailcloth in South America.—Consul B. H. Warner, of Leipzig, May 26, 1903, says:

German sail and awning cloth manufacturers of this city are making strong efforts to secure South American trade. A prominent sail manufacturer has just informed me that he has succeeded in establishing regular traffic with South American countries, and that he hopes before long to do the same in Cuba.

Trade Notes from Colombia.—The following has been received from Consular Agent H. G. Granger, of Quibdo:

American advertising matter is received locally in abundance and compares favorably with European matter of the same class, use being made of Spanish or of English with Spanish translations. Consequently, there is a marked increase of importations from the United States, a number of merchants having transferred their general dealings there from Europe. The increase is also due to the production by our manufacturers of lines of cheap goods, that still have more durability than similar European goods that have held the market hitherto. Business would be further increased if there were more prompt dispatch of orders and more care in packing for regions where there is so much rehandling, with such poor facilities. It is also advisable for catalogues to state prices. In a region where the very quickest of mail service entails a couple of months for an answer to a letter, a knowledge of prices often effects a sale.

Shipments of Rubber from Para.—Under date of June 6, 1903, Consul K. K. Kenneday says:

The shipments of rubber from the Amazon Valley during the month of May just passed amounted to 2,070 tons, as against 2,083 tons for the same month in 1902. The total export of rubber for this season—July 1, 1902, to May 31, 1903—is 28,110 tons, as against 28,738 tons for the corresponding period of the previous season. It does not appear likely that the business of this closing month of the season will materially change the relative bearing of these figures. The crop shortage this year, as compared with the year of 1901–2, will therefore be only about 2 per cent, instead of 5 per cent as estimated January 1.

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*Advance Sheets Nos. 764 (June 25, 1900) and 844 (September 27, 1900).

Closing of Venezuelan Custom-Houses.—Under date of June 5, 1903, Consul E. H. Plumacher sends from Maracaibo translation of a Government decree of May 27 closing temporarily the custom-houses at La Vela de Coro, Guanta, Puerto Sucre, Guiria, Caño Colorado, and Ciudad Bolivar. The decree provides:

ARTICLE 1. The custom-houses of La Vela de Coro, Guanta, Puerto Sucre, Guiria, Caño Colorado, and Ciudad Bolivar will be temporarily closed. The term allowed for merchandise that may arrive at the closed ports from Europe, the United States of North America, and the Antilles is as follows: For Europe, thirty days for steamers and sixty days for sailing vessels; for the United States, fifteen days for steamers and thirty days for sailing vessels; for the Antilles and Demerara, ten days, whether they are steamers or sailing vessels; and for Trinidad or Granada, two days, counting from the 1st of June, 1903.

ART. 2. The custom-house of the port of Juan Griego will be removed to the port of Porlamar, where it will have all the functions and will fulfill all the duties that are set forth in the laws of finances. The custom-house guard of Porlamar will take the place of the one of Juan Griego.

ART. 3. In each of the closed ports there will be established a custom-house guard with the duties and functions set forth in the code of finances.

ART. 4. The jurisdiction of these custom-house guards will be the same as that of the suppressed custom-houses.

ART. 5. The suppressed custom-houses of Guanta and Puerto Sucre will be submitted to the jurisdiction of the custom-house of La Guaira; those of Guiria, Caño Colorado, and Ciudad Bolivar, to the custom-house of Carupano; and La Vela de Coro, to Puerto Cabello.

Coinage for Venezuela.—Consul E. H. Plumacher writes from Maracaibo, May 26, 1903, that a legislative decree of April 11 authorizes the Executive to coin 4,000,000 bolivars ($772,000) in silver, the work to be done at the mint at Philadelphia. Two million bolivars ($386,000) are to be in coins of 5 bolivars (96.5 cents); 1,000,000 bolivars ($193,000) in coins of 2 bolivars (38.6 cents); 800,000 bolivars ($154,400) in coins of 1 bolivar (19.3 cents); 100,000 bolivars ($19,300) in coins of 50 centimes (9.6 cents); and 100,000 bolivars ($19,300) in coins of 25 centimes (4.8 cents). The circulation of this coin will be obligatory for the subjects in the proportion established for silver in the sole paragraph of article 17 of the law of July 9, 1891, on national money and under the penalty named in article 23 of the same law.

FOREIGN REPORTS AND PUBLICATIONS.

Italy's Commercial Navy.—A very interesting report made by a German imperial consul shows that in 1880 Italy entered the commercial world with 7,822 sailing vessels, registering 922,146 tons, and 158 steamers, with 77,050 tons—a total of 7,980 ships and 999,196 tons. In 1890 she had 6,442 sailing ships, of 634,149 tons, and 290 steamers, of 186,567 tons—a total of 6,732 ships and 820,716 tons. In 1901, the last date for which accurate and complete figures have been furnished, the number of sailing vessels was 5,337, with a tonnage of 575,207 tons, and the number of steamers 471, of 424,711 tons, or a total of 5,808 ships and 999,918 tons. The figures for 1901 put Italy ahead of France, which up to that time had held fourth place, with 957,756 tons, among Europe's seafaring states.

Size of Italy's ships.—Four thousand four hundred and eighty-nine ships, totaling 149,104 registered tons, ran between 1 and 100 tons; 473 ships, with a total of 112,192 registered tons, ran between 101 and 500 tons; 375 ships, with a total of 351,911 registered tons, were down for more than 500 tons each.

Building materials.—One hundred and forty-one sailing vessels, with 149,711 registered tons, had steel or iron hulls; 5,196 ships, with 425,496 registered tons, had wooden hulls.

Steamers.—In December, 1901, there were 471 steamers, with 671,398 registered tons gross, and 424,711 tons net carrying capacity. The indicated horsepower was 405,628; the nominal horsepower 90,674. Four hundred and four of these steamers had steel or iron hulls, while 67 were of wood. In 1886 Italy's ships with more than 1,000 tons registry numbered 57, with a total tonnage of 93,660 tons. In 1896 she had 106, with a tonnage of 173,974 tons; in 1901, 196 ships, with 355,455 tons. These figures speak for themselves.

The age of the Italian steamers is told in the following table, which also shows the number built in each period:

Period.	Steamers built.	Net registered tonnage.	Horsepower.
	Number.	*Tons.*	
1860-1870	75	31,938	9,255
1871-1875	60	47,015	11,037
1876-1880	57	46,313	9,726
1881-1885	103	118,257	31,031
1886-1890	53	38,270	7,510
1891-1895	38	26,633	5,181
1896-1900	71	93,200	14,151
1901	14	23,085	2,780
Total	471	424,711	90,674

A glance at these figures reveals the fact that in 1901 Italy had 123 steamers, with a registered tonnage of 142,918 tons, no one of which was over 11 years old and the greater number of which were not over 6 or 7 years old; 85 were steamers (116,285 registered tons), built on the newest and best plans. This is well worth noting.

Building activity.—The following table gives interesting information regarding the number of ships of all kinds built by Italy in the periods named:

Period.	Ships.	Registered tons.	Value.
	Number.		
1866-1870	3,427	405,436	*$23,999,346
1871-1875	2,710	367,617	*21,648,684
1876-1880	1,351	174,413	10,060,031
1881-1885	966	69,971	3,988,268
1886-1890	1,348	60,961	4,072,068
1891-1895	1,385	77,569	5,785,898
1896-1900	883	122,820	14,713,215
1901	154	44,543	5,954,158

* Estimated.

Thus, from 1866 to 1876, the average amount constructed was 75,000 tons, worth $4,450,000; the average from 1877 to 1896, 16,000 registered tons, worth $1,060,000. With 1897 a new era opens. It indicates progress and unprecedented prosperity. The favorable results are thought to be based on the premiums paid to builders by the Royal Government. The movement is indicated by the following table:

Year.	Ships.	Registered tons.	Value.
	Number.		
1897	161	11,458	$2,200,000
1898	163	19,478	2,460,000
1899	188	33,802	3,220,000
1900	188	51,476	5,340,000
1901	154	44,543	5,940,000

Among the ships of 1901 were 25 steamers, with 37,590 registered tons, worth $5,640,000, of which 4 were splendid screw steamers—the *Sardignia*, *Liguria*, *Lombardia*, and *Umbria*. Quite recently a sister ship—the *Piemonte*—has been added. Besides these boats and all above enumerated, Italy has caused quite a number of new vessels to be built and bought abroad. In 1901 she had 3 steamers, with 2,189 registered tons, built abroad, while 28 steamers, with 24,820 registered tons, were bought abroad. She sold 32 steamers, registering 21,679 tons. In accordance with the laws of 1896 (July 23—No. 318) and 1901 (May 16—No. 176), building premiums amounting to $1,329,959 were paid and tariff rebates amounting to $33,653 paid back, and $211,753 paid on trips made to specified places.

New Electric Fast-Flashing Light.—The following is a résumé of an article in a German periodical, Ueber Land und Meer:

Members of the shipping, industrial, and commercial world will find much to interest them in the new flash light erected by the German Empire on the island of Helgoland in the North Sea. Germany is particularly proud of the results. Her interest in it, of course, is great, for it is that of an immediately or directly interested party. The system or principle employed is said to be entirely new. Not only that, but it was said to present absolutely insurmountable difficulties. The era that opened with 1900 is one that delights in nothing so much as in solving "insolvable" problems and doing "impossible" things. The revolving light on Helgoland is not only the largest in the world, it is the most unique, for Germans claim that it never had a model.

Special praise is given, and it is claimed that special credit is due, to the Empire's technicians who persisted in their purpose until they perfected their plans, for they had to do it in the face of warnings from experts in all parts of the world. They built upon the superiority of the German reflector, with its exactly parabolic ground-glass mirror or speculum, and the marvelous success of the Helgoland fast-flashing light has justified German effort, skill, and courage. In these lines, for a long time, France was in the lead. It looks as if she would have to guard her laurels. The reflector, invented by Schuckert, with its parabolic mirror, is easily earning a place by the side of the world's very best work. It took a long time to get a hearing for the glass parabolic mirror in the light-house world. The bright fires—"feux éclairs"—of the system, based upon a combination of Fresnel lenses and totally reflecting ring prisms, which were built by the French with marvelous skill and accuracy, blocked the way to the new lights. About the middle of the nineties German experts were sent to France by the German Imperial Government for the express purpose of studying flash lights. The experts stayed long enough to find out all that was best in the French system, aided thereto by the kindness of the scientific men of the Republic. Before their return they were convinced that by means of two or more reflectors, erected upon a reflector with Schuckert's glass parabolic mirror, results equal to those of France could be produced.

Experiments were made in Nuremberg. They went far beyond what the most sanguine had believed possible. The revolving reflector of the German apparatus was fully equal to the Frenchman's revolving light. As soon as the experts had demonstrated their point, work was begun on a light reflector or projector equal to the largest ever used. It was to represent 30,000,000 candlepower and to last no longer than one-tenth of a second. The flashes must follow each other every five seconds. It is hardly necessary here to go into details that would require cuts or illustrations to explain. With the scientific papers of the Empire one may be permitted to point out the important fact that the flash light illumines the entire horizon. In normal weather it may be seen 23 sea miles (23 leagues). When the weather is favorable, the beams go far beyond the central fires or light rays. On the first night that the new light was used, its peculiar, flashing beams were seen by people standing on the mole at Busum, a distance of 65 kilometers, or a trifle over 40 miles. The watchers in the light-house at Amrum, about the same distance, were able in unfavorable weather to see the same beams as they rapidly appeared and disappeared. It was noted that the otherwise bluish-white light of the electric arc appeared red.

Technical High School in England.—The following is a résumé of an article published in the Frankfurter Zeitung, June 29:

> Lord Rosebery wrote the London County Council, submitting a plan for the establishment of a school in London like the famous technical high school at Charlottenburg, near Berlin. In his letter, Lord Rosebery says it is almost a shame that capable, ambitious English boys, who are striving to obtain a complete technical training, are forced to visit American or German universities. Many English industries have suffered—some of them very seriously—and some are still suffering because England failed to provide advanced instruction in the technical trades, sciences, etc., or to provide means for doing the research work that is done so successfully by the Germans.
>
> The most complete example of such instruction, according to Lord Rosebery, is, perhaps, the technical high school at Charlottenburg—which the Empire has to thank for a large part of the industrial success attained since 1870–71. Because of Berlin's and Charlottenburg's better methods of preparing young men for their life work, young Londoners and other English boys that come up to London to look for positions find them already filled by Germans. Here one has the cause of the German clerk's ubiquity. He is better prepared than is the English boy for all kinds of work, particularly along lines that call for technical training. Lord Rosebery indicated a desire, in his letter to the county council, to contribute liberally to such a school. He adds the names Wemher, Veit & Co. This firm, as well as others, is willing to expend large sums to secure such a school. A beginning is to be made by buying 4 acres in Kensington for $1,000,000. Upon this, buildings to cost $1,500,000 are to be erected. The only hitch in the good work is the necessity of getting $100,000 per year to support the school. The main purpose of Lord Rosebery's letter is to get the county council to guarantee the money. A committee or body of directors has been organized, with Lord Rosebery at its head. Among the members are the Duke of Devonshire, Lord Balfour, Julius Wemher, and the vice chancellor and president of the University of London. With such men behind the movement it ought to succeed. Of the great need of technical, industrial, and industrial-art education England is at last fully aware. It has been preached for so long and by so many able advocates that its development can only be a question of a very short time.

British Consular Notes on Danish Trade.—The following notes are taken from a report of the British consul at Copenhagen to his Government:

Electric tramways.—The cars for the extensive system of tramways in Copenhagen have been, up to the present, built in Germany and in Denmark; also the electric plant. The value of the supplies runs into many thousands of pounds.

Sporting requisites in Denmark.—The attention of British manufacturers is called to the rising popularity of athletic sports in Denmark. The trade in sporting articles is growing and the demand for athletic goods increasing. Hitherto the sale of these goods has been entirely in the hands of British manufacturers or exporters.

Haberdashery.—Almost the whole of the haberdashery trade is in the hands of the Germans, and travelers from the United Kingdom are few and far between. The best way to introduce this class of trade is to send an experienced traveler to find out the local requirements, and, if necessary, appoint a reliable agent, always being careful to quote prices and give particulars in Danish.

Wall paper.—There is also considered to be a very good opening for the introduction of wall paper into the Danish market, and a good and profitable trade might be worked up. Building is still on the increase, and the consul states that he can not remember ever having heard of a traveler for these goods coming to Copenhagen.

California wines.—Commenting on an attempt being made to introduce California wines on the Danish market, the consul says:

> From all accounts the prices asked are somewhat too high. It remains to be seen how far it is possible to popularize them in a country in which excellent beer is sold for 1s. 2d. (28 cents) per dozen bottles. There is no doubt that this matter is worth looking into.

Germans in Concepcion, Chile.—A foreign consular report of recent date says that Germany comes close behind England in selling goods to the Chileans at the port of Concepcion. Thither she sends cotton and woolen goods, clothes, linings, knit goods, furniture cloths, trimmings, ribbons, and cloakings; leather goods and leather; musical instruments; chemicals, dyes, and drugs; stone, glass, iron, and enameled wares; machines, agricultural tools, etc., of all kinds; technical and surgical instruments, preserves, toys, objects of art, lamps, cement, pianos, furniture, photographers' supplies, oils, weapons, and artificial flowers. Chile makes a great deal, if not most of her own necessary or useful articles; hence a falling off in their importations has been observable. Among these articles are ordinary glass bottles and demijohns, matches, packing paper, blackings, blank books, tags, printed matter, shoes, etc.; brooms; ready-made clothing and cotton knit goods; flour, etc.; alcohol, liquors, beers, and wines; mirrors, leather and leather goods, shot, twines, linseed oils; pastes, macaroni, and noodles; ordinary chocolates and sweetmeats, tea biscuits, straw hats, shirts, carriages and other vehicles, bits and spurs, brushes and drawing materials, woven-wire wares, furniture, gloves, billiard and ten-pin balls and pins, iron and brass bedsteads, galvanized-iron roofings, iron safes, railroad cars or coaches, small steamers, boilers, sulphuric acid, etc. For the production of these various articles many raw and half-raw materials are imported.

The list indicates a desire on the part of people in South America to manufacture as many as they can of the staples needed in their daily lives.

Commercial Travelers in Roumania.—In his recent report on the trade of Roumania for the year 1902, which appeared in the British Board of Trade Journal, the British vice-consul at Galatz writes to his Government:

> It is very necessary that a commercial traveler in Roumania should be well acquainted with French and German. In order to obtain this result, the firm invokes the aid of a German, who serves his British master for a time and learns where our strength and weakness lie. In the meantime, the commercial traveler does not forget his own interests, and before long he is in the employ of a German firm, who profit greatly by his experience of British and German trade methods. I do not, of course, mean to imply that the same person, when in the employ of a British firm, failed to serve his master with diligence and fidelity.
>
> In the case of the commercial traveler being an Englishman, he will often be found to be deficient in knowledge of the language of the country. Unlike the German, he does not think of calling on the consul, invoking his knowledge of the place. He forgets, too, that a firm considered safe a year ago may not be so at the time of his visit. No German or Austrian, traveling for a German or Austro-Hungarian firm, would dream of going to various shops, etc., for orders without first paying his consul a visit and making thorough inquiries regarding firms, new and old, and fresh markets.
>
> It is a serious want of consideration on the part of British traders to place their agencies in the hands of persons dealing in, or representing the makers of, similar goods in Austria-Hungary, Germany, etc. On the basis that "no man can serve two masters," it would be prudent to refuse to give the "sole sale" of any particular line of British-made goods to an agent or commission house selling continental makes at the same time. When a sole agency is insisted upon, the conditions should be binding on both parties.

International Exposition at Milan in 1905.—Nachrichten für Handel und Industrie says that the completion of the world's longest tunnel—Simplon—is to be celebrated at Milan, the nearest important Italian city, by an international exposition, for which preparations have been made. It is to take place upon the opening of the tunnel to traffic in 1905. A fund of $600,000 has been raised, of which fully half has been contributed unconditionally. This gives the enterprise a good guaranty to begin with; it makes it sure of an opening. Success will have to depend upon the people exhibiting. The King of Italy has accepted the position of protector. The committee having the matter in charge has established certain fixed rules, with a view to confining the exhibits within certain lines. The departments of transportation by land and water, navigation of the air, and the division dealing with the question of protection from accident in the transportation world, as well as the so-called decorative-arts exhibits, may be international in character. The high-art exhibits shall be exclusively national—*i. e.*, Italian. Just why this ruling has been made does not appear. It is provided also that only such products will be admitted for exhibition as have an actual technical or artistic value, or which are charteristic novelties. The purpose of this rule is to prevent the exhibition of cheap bazaar articles.

Australian Tariff Problems.—The Nachrichten für Handel und Industrie says:

> A difference of opinion prevails in Australia between the Australian Government and the governments of the different States making up the new National Federation. It is due to a doubt about the payment of duties on goods imported by one of the States for its own use. Up to quite recently the federal customs officers held that each State had to pay duties, even on goods destined for State purposes. A case was carried up to the supreme court by the treasury department of New South Wales. The decision was in favor of the State. An appeal is to be made to the privy council in London, for the matter is turning out to be much more serious than was at first thought possible. If the States can bring in everything they need free of duties, as is claimed by the advocates of what may be called State rights, vast quantities of iron, steel, locomotives, machines, and telegraph, cable, and railroad materials may be imported, to the great injury of Australian industries that had been promised protection. Up to the date of the decision it looked very dark for European manufacturers who hitherto had sent large shipments of all kinds of goods to the Australian States. If the State governments can import what they need free of duty, they can easily kill off the "infant industries" that were being established in those far-off parts, for no factory in Australia, unprotected by fairly high tariff, is able to keep up a successful competition with Germany, France, Italy, England, and other European states. It is not strange, therefore, with a danger so great and so near, that the Federal Government appeals to the imperial powers in London. If the decision is in favor of the States paying duties, it means fully $1,500,000 to the treasury.

An Electric Crane in Germany.—The following is a summary of an article which recently appeared in Ueber Land und Meer:

There was erected on the wharf at Emden a few days ago the first electric crane ever put up in Germany. It is three stories high and is run by three electric motors, which are fed from a central plant with a 400-volt pressure. It is capable of developing 60 horse-power, and is built on the very edge of the mole, or wharf, alongside of which the ship to be loaded is tied. A loaded coal car is backed onto a platform under the crane's hooks, the electricity is turned on, the car and platform ascend a story, the wagon is automatically tipped, and a carload of coal is unloaded into the ship's hold. The capacity of the crane is over 100,000 pounds.

In the July number of CONSULAR REPORTS Mr. Harris, the United States commercial agent at Eibenstock, Germany, calls attention to an electric crane at Kiel with power to lift 150 tons and to load two ships at the same time, similar to the one referred to above.

Italy's Commercial and Industrial Situation.—One of Italy's leading commercial papers, Il Commercio, says that during the first three months of the year 1903 Italy's imports, including gold and silver, amounted to $92,200,600, against $84,322,286 for a like period in 1902. The exports were $72,761,000 for the first three months of 1903 and $68,901,000 for the same period of 1902. The increase in imports ($7,877,714) was due to increased importations in grains, flour, and raw products for pastries, etc. Cotton and cotton goods went up $1,698,400; next came animals and animal products, with an increase of $868,500. Following these came chemicals, apothecary wares, pitch, perfumeries, etc., to the amount of $675,500.

The exports increased by $3,860,000, made up for the most part of silk and silk goods. Besides its ever-increasing revenue from the thousands who visit her shores as travelers, Italy is earning increased sums by her rapidly reviving manufactures. The waters of the Alps and Apennines are giving her as cheap power by means of electrical plants as coal is furnishing to Belgium, Germany, England, and the United States.

Effects of High-Priced Cotton in England.—The following article relative to the effects of high-priced cotton in England is translated from the Nachrichten für Handel und Industrie, of Berlin:

> The increase in prices for raw cotton is injuring the cotton industries of Great Britain. Lancashire spinners have come to the conclusion that it is possible to free themselves from their very unfavorable position by curtailing the production of cotton goods. The president of the Master Spinners' Association sent out a circular letter about the middle of May not only to members, but to all the spinners of the country, asking them to shut up shop during Whitsunday week and afterwards on Mondays and Saturdays of each week. All agreed to do no work during the

week indicated, but concluded to leave the question of closing Mondays and Saturdays open for further information and discussion. The Cotton Spinners and Manufacturers' Association agreed to do essentially the same thing. This is why the cotton mills of Lancashire were all closed during Whitsunday week and why quite a large number were not working on the Mondays and Saturdays after Whitsunday. The coal miners of the country are complaining about the decreased demand for furnace or boiler coal, due to movement in the cotton mills.

Tenders for the Supply of Hospital Stores in Egypt.—The Egyptian Journal Officiel of June 22 announces that tenders will be received at the central administration, sanitary department, Cairo, until 1 p. m. on August 31, 1903, for the supply of hospital stores and equipment, consisting of calicoes, flannels, blankets, kitchen utensils, etc., necessary for the year 1904. Forms of tender, samples, and all information may be obtained on application to the director of stores, central administration. Offers should be made on stamped paper. Tenders should be addressed "Director-General, Sanitary Department, Cairo," and marked in left-hand corner "Tender for hospital stores, etc." The director-general reserves to himself the right to refuse or accept any tender or part of tender.

Catalogues in Foreign Languages.—A report by the British vice-consul at Adana has been received at the British Foreign Office, from which the following extract has been made:

> I am glad to say that I have recently received catalogues from British houses in the French language and the French comparative weights and measures, which is a step in the right direction. I would strongly advise our traders to send a card with name, address, and business before troubling to send expensive trade circulars and catalogues to consulates. In case a sale exists for such goods we shall not fail to reply. This will save much trouble, expense, and misapprehension, and will enable traders to form a good idea of what trade they can expect all over the world. By the present system no reply reaches them unless a definite question is asked, and, remaining in doubt, they continue to send catalogues, many of which must necessarily be of no use whatever in certain parts of the world.

Agricultural Machinery and Hardware in the Sudan.—The British Board of Trade Journal of July 2 contains an article on the "Commercial development of the Egyptian Sudan," in which attention is directed to the various openings in that country. With the development of agriculture, it is pointed out that a demand for machinery is bound to arise, particularly as regards irrigation machinery, cotton gins, and oil and flour-milling machinery.

Straw Presses in Russia.—The British consul-general at Odessa states that presses for pressing straw from the thrasher in the field for convenience in carting to the homestead where it is used for winter fuel can find a ready sale in that district. A machine was offered at $720, but did not work successfully. It is thought that a press which would meet all requirements would be sure to sell.

INDEX.

VOL. LXXII—NOS. 272, 273, 274, AND 275.

Acetylene, alcohol, France, 221.
Activity, shipbuilding, Italy, 599.
Africa:
  Cotton, German East, 139.
  Cotton goods, South, 431.
  Machinery, demand, South, 310.
  Machinery, market, South, 150.
  Machinery, United States, opening, South, 146.
  Mining regulations, German East, 269.
  New railways, Southeast, 432.
  Progress in (Rhodesia, Uganda, Victoria Nyanza, Ethiopia, Sudan, etc.), 429.
  Railway, new, Portuguese East, 91.
  Transvaal, exports, 139.
Agricultural exhibition, Limoges, 224.
Agricultural exports, Egypt, 146.
Agricultural fair, Cüstrin, 51.
Agricultural implements, South Germany, 209.
Agricultural lands, Cuba, 357.
Agricultural machinery, Russia, request, 306.
Agricultural possibilities, Asia Minor, 567.
Agricultural products, Nicaragua (1902), 347.
Agricultural resources, Peru, 340.
Agriculture, Northwest Canada, 142.
Aintab, trade, caravan, 568.
Alaska gold discoveries, 300.
Albania, trade notes, 175.
Albert, T. J. (consul Brunswick):
  Condition of German jute industry, 587.
  German inquiry, furniture and dry goods, 539.
Alcohol appliances, exhibition, Lima, 341.
Alcohol:
  From acetylene, France, 221.
  From Jerusalem artichoke, 72.
  Potato, Germany, 32.
Alger, N. E. (consul, Puerto Cortes):
  Exports, mineral, Honduras, 308.
  Honduras, commerce (1902), 121.
  Soap and candles, manufacture, Honduras, 596.
Algeria:
  Coral, 569.
  Fishing, persons employed, 569.
  Porpoises, method of destruction, 569.
  Value of fish catch, 569.
  Zinc industry, 266.
Alizarin, artificial, Germany, 533.
Alkali field, new, 585.
Almeria, pier, 425.
Almond outlook, Spain, 471.
Amazon, transit duties abolished, 134.
American capitalists attracted, Sudan, mineral discovery, 571.
American coal, western France, 397.
American corn, Havre, 398.
American furniture and dry goods, firm names wanted, Germany, 539.
American goods, possibilities of sales, Egypt, 575.
American machinery, France, 394.
American markets, competition, South America, 509.
American medicines, advice, method of shipping, 575.
American oil, cost in Fuchau, 502.
American pork, Turkey, 479.
American typewriters and salt-mining machines wanted, Warsaw, Russia, 589.
American vs. European manufactures, Cuba, 353.

Andalusia:
  Railway, new, 231.
  Trade (1902), 231.
  Trade notes (wines and liquors of Jerez, cooperage and sulphur mines), 424.
Aniline, Germany, 533.
Anthracite coal, Fuchau, 503.
Antwerp, ivory market, 71.
Aqueduct, Western Australia, 436.
Argentine Republic:
  Cattle inspection, 124.
  Crops, 309.
  Trade (1903), 287.
Arsenic deposits, Ontario, 302.
Artichoke, Jerusalem, alcohol from, 72.
Asbestos, Siberia, discovery, 307.
Asia Minor, development, agriculture, 567.
Auction, quinine, Batavia, 582.
Australasia:
  Gold production, 96.
  Minerals, 95.
Australia:
  Customs regulations, 592.
  Poultry and other meat export, New South Wales, 97.
  Tariff problems, 604.
  Wool shipments, 141.
Austria:
  Commercial travelers, 84.
  Exhibit, Osaka Exhibition, 581.
  Prizes, designs for raising canal boats, 392.
  Taxes and regulations, foreign commercial agents, 250.
  Zinc industry, 251.
Austria-Hungary·
  Commercial education, 558.
  Hide market, 85.
  Tariff, proposed, 85.
Autocar, electric, Belgium, 311.
Automobiles:
  Exposition, Berlin, 205.
  Exposition, Brussels, 136.
  Speed limit, Leipzig, 585.
  Touring, Canada, 473.
  United States, introduction, Switzerland, 73.
Avery, W. L. (consul, Belize), proposed railway, British Honduras, 350.
Ayers, J. M. (consul, Rosario), crops, Argentine Republic, 309.
Aymé, L. H. (consul, Guadeloupe):
  Buttons, Guadeloupe, duty, 307.
  Quay duties, illegal, Pointe a Pitre, 595.
  Wireless telegraphy, Guadeloupe, 595.

Baehr, M. J. (consul, Cienfuegos):
  Bridge, Arimao River, benefits, 508.
  Railway project, Cuba, 474.
  Sawmills and lumber, Cuba, 128.
  Trade of Cienfuegos (1902), 358.
Bagdad:
  Articles of commerce, 568.
  Railway, proposed, 565.
Bahama Islands, railway, marine, Nassau, 144.
Baker, O. H. (consul, Sydney), aqueduct, Western Australia, 436.
Balkan States, communication with Italy, 311.
Barcelona, iron for warehouses, 144.
Barlow, A. D. (consul-general, Mexico City), Government purchase, railroad, Mexico, 594.
Barrels, paper, Greece, opening, 88.
Bartleman, R. M. (consul, Valencia):
  Silver and plated ware, Spain, 79.
  Spain, foreign commerce (1902), 77.
Batavia, quinine auction, 582.
Beaupré, A. M. (consul-general), Bogotá):
  Emerald mines, Colombia, 511.
  New tariff, Colombia, 572.
Belgium:
  Autocar, electric, 311.
  Brussels, exposition, automobile, 136.
  Commercial education, 559.
  Education, commercial, results, 563.
  Fog signal, 68.
  Ivory market, Antwerp, 71.
  Liege, exposition, international, 137.
  Meat, sterilization, 72.
  Zinc industry, 253.
Bellows, E. C. (consul-general, Yokohama):
  Financial system, Japan, 438.
  Monopolies, government, Formosa, 170.
  Sugar refining, Japan, 102.

Bergh, R. S. S. (consul, Gothenburg):
  Electric motors, brake, Sweden, 138.
  Glass factories, Sweden, combination, 135.
  Milk flour, Sweden, 88.
  Wood-pulp market, Sweden, 306.
Berlin:
  Congress, applied chemistry, 135.
  Exposition, automobile, 205.
Berliner, S. (consul, Teneriffe), trade in the Canary Islands, 485.
Beutelspacher, G. (commercial agent, Moncton):
  Agriculture, Northwest Canada, 142.
  Canadian tariff, German goods, 372.
Biarritz, congress, thalassotherapy, 137.
Bicycles, China, 171.
Bigham, W. R. (consul-general, Cape Town), request for names of whale-oil dealers, 480.
Birch, D. R. (consul, Malaga).
  Almond outlook, Spain, 471.
  Hematite mining, Spain, 80.
  Oil, olive, Spain, 78.
  Steamship service, United States and Spain, 236.
Bittinger, J. L. (consul-general, Montreal), United States investments, Canada, 293.
Blockade, Orinoco, 125.
Blue vitriol, Germany, 530.
Bohemia:
  Cut-glass industry, 548.
  Flax market, 304.
  Glassworkers, number, 548.
  Glassworkers, wages, 548.
  Industrial census, 392.
  Strike of glassworkers, 548.
Bolivia, mining enterprises and limited companies, 122.
Bombay, dock, new, 169.
Bonded stores, tobacco, Malta, 479.
Bones for knife handles, Germany, request, 146.
Boots and shoes, Cuba, American vs. European, 354.
Boric acid, use, Germany. 531.
Boyle, J. (consul, Liverpool), municipal socialism, Great Britain, 383.
Bradford:
  Congress, sanitary, 134.
  Wool-combing industry, 57.
Brake, electric-motor, Sweden, 138.
Bray, J. P. (consul-general, Melbourne):
  Australian customs regulations, 592.
  Gold production, Australia, 96.
  Wool shipments, Australia, 141.
Brazil:
  Advice to exporters and emigrants to, 345.
  Amazon, transit duties abolished, 134.
  Coffee legislation, Sao Paulo, 343.
  Coffee output, 345.
  Nuts, amount shipped, 504.
Breakwater, Malta, new, 552.
Bremen, shipping business (1902), 54.
Bricks:
  New quarzitol, 145.
  Sand, Germany, 51.
Bridges:
  Arimao River, Cuba, 508.
  British Columbia, new, 143.
British Columbia:
  Bridges, new, 143.
  Coal and petroleum, 300.
  Sewage, disposal, 143.
British consular notes, Danish trade, 602.
British Guiana, tariff (year ending March 31, 1904), 319.
British Honduras, proposed railway, 350.
British India:
  Electrical machinery, demand, 495.
  Trade, United States, 495.
British lace and hosiery exports, 383.
Brittain, J. I. (consul, Kehl):
  American dried fruits, Germany, 544.
  College, United States, Strassburg, 136.
  New docks near Strassburg, 468.
Brunot, H. S. (consul, St. Etienne), firearms, manufacture, France, 223.
Brussels, exposition, automobile, 136.
Budapest, chemicals, opening, 138.
Bundling press, Germany, latest, 48.
Burk, M. J. (consul, St. Thomas):
  Preparing peat for fuel, Ontario, 593.
  Railway equipment, Canada, new, 302.
Butter, Guadeloupe, duty, 307.
Buttonhole machine, new Swiss, 470.

Cable:
  Laying, Germany, 543.
  New German, between Emden and United States, 478.
  Norfolk Island, 279.
Cacao crop, northern Brazil, 505.
Cacao planting, Nicaragua, 347.
Caldwell, C. S. (vice-consul, San José):
  Confectionery and petroleum, Costa Rica, duties, 310.
  Costa Rica, commerce (1902), 115.
  Costa Rica, trade notes, 290.
  Fiscal agency, Limon, 310.
  Foods, prepared, Costa Rica, duty, 143.
  Launch service, Costa Rica, 352.
Camphor forest, Formosa, 152.
Camphor, Fuchau, exports, 503.
Canada:
  Agriculture, Northwest, 142.
  Arsenic deposits, Ontario, 302.
  Automobiles for touring, 473.
  British Columbia, bridges, new, 143.
  Canal, Lake Champlain-St. Lawrence, proposed, 108.
  Coal and petroleum, 300.
  Commercial loyalty, 107.
  Duty, binder twine, 142.
  German commerce with, 373.
  Investments, United States, 293.
  New industries, 109.
  New steamship line from La Rochelle to, 372.
  Peat fuel, preparing, Ontario, 593.
  Postage rates, 141.
  Railway equipment, new, 302.
  Railway to the Yukon, 131.
  Railways and canals, 107.
  Sewage, disposal, Vancouver, 143.
  State railways, 107.
  Steel industry, Ontario, 142.
Canada, W. W. (consul, Veracruz):
  Cattle market, Mexico, 475.
  Changes, Mexican stamp taxes, 521.
  Corn crop, failure, Yucatan, 595.
  Custom duties, small shipments, Mexico, 475.
  Lithographic stone, Mexico, concessions for quarrying, 291.
  Meat-canning factory, 133.
  Mexican commercial museums abroad, 594.
Canada, W. W.—Continued.
  Mexican tariff on ferromanganese, 594.
  New railway, Veracruz, 352.
  Proposed patent laws, Mexico, 475.
  Railway-car plant, Mexico, 132.
  Tax, dynamite and powder, Mexico, 593.
  Veracruz, trade, 110.
Canadian tariff, German goods, 372.
Canal boats, Austrian prizes, design for raising and lowering, 392.
Canals:
  Canada, 107.
  Corinthian, 241.
  Lake Champlain-St. Lawrence, proposed, 108.
Canary Islands:
  Coal, 486.
  Commodities, price, 489.
  Cost of living, 488.
  Custom duties, 487.
  Drawn work, 487.
  Emigration, 487.
  Exports, 486, 492.
  Imports, 485, 490.
  Improvements, 487.
  Lumber, 486.
  Petroleum, 486.
  Post-office, 488.
  Return, shipping, La Palma (1902), 494.
  Shipping, Santa Cruz (1902), 493.
  Sugar, 487.
  Tobacco, 486.
  Trade, Grand Canary, 489.
  Transportation and shipping, 488.
Can openers, Great Britain, inquiry, 311.
Caper culture, France, 399.
Cape Town, whale-oil dealers, request for names, 480.
Caravan trade, Aintab, 568.
Carleton, A. E. (consular agent, Almeria):
  Andalusia, trade (1902), 231.
  Grapes, Spanish, shipments, United States, direct, 81.
  Pier, Almeria, 425.
Cars, electric, speed limit, Leipzig, 585.
Cartagena, trade, 281.
Castings, steel, Ireland, demand, 217.

Catalogues:
    Coffee and lime machines wanted, Johannesburg, 592.
    Foreign languages, 606.
Cattle:
    Inspection, Argentine Republic, 124.
    Market, Mexico, 475.
Census, Bohemia, industrial, 392.
Chambers, J. C. (consul, Batum), petroleum trade, Russia, 1.
Chambers of commerce, German, 374.
Chemicals:
    Budapest, opening, 138.
    Factory, largest, world, 584.
    Industry, Russia, 174.
    Production, Germany, 528.
Chemnitz:
    Hosiery and glove export trade, 381.
    Houses, foreign commercial, 215.
Chester, F. D. (consul, Budapest):
    Albania and Montenegro, trade notes, 175.
    Chemicals, Budapest, opening, 138.
    Commercial policy, Hungary, 591.
    Copper production, Hungary, 591.
    Drawbacks, Hungary, 549.
    Exposition, Sillein, 306.
    Grapevines, Hungary, 479.
    Hide market, Hungary, 85.
    Italy, communication, Balkan States, 311.
    Medical preparations, Hungary, 471.
    Proposed public works, Hungary, 550.
    Railway-zone system, State, Hungary, 138.
    Specie payment, Hungary, assumption, 305.
    Tariff, Austro-Hungarian, proposed, 85.
Chile:
    Nitrate production, 286.
    Trade, Germany, 602.
    Trade-marks, 285.
China:
    Bicycles, 171.
    Dalny, customs service, 140.
    Demand for bicycles, 472.
    Exports to United States, 105.
    Failures, business, 578.
    Financial crisis, Tientsin, 576.
    German firms, 99.
    Kyao-chau, colony, German, 101.
    Trade, Russia, 149.
Chloroform, import, Germany, 528.
Choate, J. H. (ambassador, Great Britain), congress, sanitary, Bradford, 134.
Cienfuegos, trade (1902), 358.
Cities on Bagdad Railway, 567.
Citrus-fruit crisis, Italy, 82.
Clearance, merchant vessels, Cuban ports, 473.
Coal:
    American, western France, 397.
    British Columbia, 300.
    Canary Islands, 486.
    Dust fuel, Germany, 182.
    Industry, British Columbia, 370.
    Miners' strike, British Columbia, 502.
    Mining, Fuchau, 502.
    New South Wales, 593.
    Poland, product, 589.
    Product, Great Britain (1902), 145.
    Production, France (1902), 217.
    Supply, Great Britain, 311.
Coffee:
    Crop and prices, Nicaragua, 349.
    Legislation, Sao Paulo, 343, 476.
    Market, Brazil, 343.
    Nicaragua, 347.
    Output, Brazil, 345.
Coinage, silver, Venezuela, 597.
Coins, silver, export, Nicaragua, prohibited, 133.
College, United States, Strassburg, 136.
Colombia:
    Cartagena, trade, 281.
    Duties, import, 282, 336.
    Duties, new, 144.
    Mines, emerald, 511.
    Tariff, new, 512.
Colonial schools, Witzenhausen, results, 564.
Colonies, French, trade, 149.
Colony, German, Kyao-chau, 101.
Colvig, G. W. (consul, Barranquilla), import duties, Colombia, 282.
Combination, shipbuilders on the Tyne, 592.
Commerce, Dahomey (1902), 483.
Commercial agents, taxes and regulations for foreign:
    Austria, 250.
    Denmark, 248.
    England, 249.
    France, 249.

Commercial agents, etc.—Continued.
  Netherlands, 249.
  Norway, 249.
  Russia, 250.
  Sweden and Norway, 250.
  Switzerland, 250.
Commercial and industrial situation, Italy, 605.
Commercial Institute, St. Ignace, Antwerp, 560.
Commercial Relations, 146.
Commercial travelers:
  Austria, 84.
  Roumania, advice, 603.
Commercial treaties, Europe, 388.
Concessions, quarrying lithographic stone, Mexico, 291.
Confectionery, Costa Rica, duties, 310.
Congress:
  Applied chemistry, Berlin, 135.
  Fire prevention. London, 145.
  Sanitary, Bradford, 134.
  Thalassotherapy, Biarritz, 137.
Consular reports transmitted to other Departments, 147, 312, 480.
Consular service, Cuba, 128.
Consumption tax, Madagascar, 278.
Copenhagen and Baltic ports, steamship service, 553.
Copper, Hungary, production, 591.
Corinthian Canal, 241.
Corn, American, Havre, 398.
Corn crops:
  Failure, Yucatan, 594.
  Nicaragua, 348.
Cost of living, Canary Islands, 488.
Cost, public works, Hungary, 550.
Costa Rica:
  Commerce (1902), 115.
  Confectionery and petroleum, duties, 310.
  Duty, prepared foods, 143.
  Exports, 116.
  Launch service, 352.
  Limon, fiscal agency, 310.
  Railways, 116.
  Steamship lines, 117.
  Trade notes, 290.
Cotton:
  Cultivation, Nicaragua, 348.
  Cultivation, Tunis, 482.
  Effects of high-priced, London, 605.
Cotton—Continued.
  German East Africa, 139.
  South Africa, requirements, 431.
Cotton crop, India (1902–3), 98, 168.
Cotton goods, Cuba, American vs. European, 355.
Cotton industries, Great Britain, injured, 605.
Cotton seed, delinting machines, request, 477.
Cotton yarn, imports, Fuchau, 501.
Covert, J. C. (consul, Lyons):
  Alcohol from acetylene, France, 221.
  Proposed tariff changes, France, 521.
  Silk culture, France, 237.
  Silk-muslin manufacture, United States, proposed, 478.
  Wine trade, Cuba, 474.
Cranes, Germany, electric, 380.
Cree, J. C. (vice-consul, Callao), exhibition, alcohol appliances, Lima, 341.
Creevy, E. A. (consul, Glauchau), embroidering apparatus, Germany, 49.
Crops:
  Argentine Republic, 309.
  Corn, failure, Yucatan, 594.
  Corn, Nicaragua, 348.
  Cotton, India (1902–3), 98, 168.
  Prussia, 540.
  Wheat, India (1902–3), 167.
Crossland, J. R. A. (consul-general, Monrovia), trade, Liberia, 466.
Cuba:
  Agricultural lands, 357.
  American vs. European manufactures, 352.
  Arimao River, bridge, 508.
  Clearance, merchant vessels, 473.
  Diplomatic and consular service, 128.
  Foreign documents, legalization, 474.
  Railway project, 474.
  Santiago de Cuba, trade, 127.
  Sawmills and lumber, 128.
  Trade, 126.
  Trade, Cienfuegos (1902), 350, 358.
  Trade, Santiago de Cuba (quarter ended March 31, 1903), 361.
  Trade terms, Europe, 292.
  Wine trade, 474.

Cultivation:
    Beet-sugar, 589.
    Cotton, Nicaragua, 348.
    Cotton, Tunis, 482.
Currant crisis, Greece, 247.
Currant export, Greece, 467.
Custom duties:
    Canary Islands, 487.
    Small shipments, Mexico, 475.
Custom-houses closed, Venezuela, 597.
Custom service, Dalny, 140.
Customs tariff, different classes, Colombia, 512.
Cüstrin, fair, agricultural, 51.

Dahomey, commerce (1902), 483.
Dalny, customs service, 140.
Dalny-Moscow through railway service, 174.
Danish trade, British consular notes, 602.
Day, E. S. (consul, Bradford), wool-combing industry, Bradford, 57.
Deal, C. (consul, St. John's), coal and petroleum, British Columbia, 300.
De Castro, H. (consul-general, Rome):
    Exhibition, poultry, Rome, 137.
    Olive oil, Italy, 590.
Diederich, H. W. (consul, Bremen):
    Quarzitol, new brick, Germany, 145.
    Shipping business, Bremen (1902), 54.
Delinting machines, cotton seed, American, inquiries, 477.
Denmark:
    California wines, introduction, 602.
    Electric tramways, 602.
    Source of imports, 497.
    Sporting requisites, 602.
    Steamship, new, 216.
    Taxes and regulations, foreign commercial agents, 248.
    Wall paper, 602.
Deposits, arsenic, Ontario, 302.
De Soto, H. (vice-consul, Warsaw):
    Machinery, agricultural, Russia, request, 306.
    United States goods, Russian Poland, 27.
Device, house-cleaning, 555.
Dickinson, C. M. (consul-general, Constantinople), harbor works, Turkey, 305.
Dill, H. P. (consul, Port Hope), hydraulic lock, Ontario, 368.
Diplomatic service, Cuba, 128.
Dividends, German steamship lines, 407.
Dock, Bombay, new, 169.
Docks, new, near Strassburg, 468.
Donaldson, C. (consul, Managua), agricultural products, Nicaragua, 347.
Drug trade, Germany, 534.
Dudley, I. B. (minister, Lima):
    Mineral and agricultural resources, Peru, 340.
    Trade, Peru (1901), 308.
Dudley, L. E. (consul, Vancouver):
    Postage rates, Canada, 141.
    Railway, Canadian to Yukon, 131.
    Sewage, Vancouver, disposal, 143.
Dundee, trade (1902), 61.
Dutiable values, protest, German exporters, 584.
Duties:
    Binder twine, Canada, 142.
    Butter, Guadeloupe, 307.
    Confectionery and petroleum, Costa Rica, 310.
    Costa Rica import, 144.
    Import, Colombia, 282, 336.
    Needles, Russia, 145.
    Pine, Venezuela, 480.
    Prepared foods, Costa Rica, 143.
    Quay, illegal, Pointe a Pitre, 595.
    Rates, quay, Pointe a Pitre, 595.
    Soap, Nicaragua, 310.
    Transit, Amazon, abolished, 134.
Dynamite tax, Mexico, 593.

East Africa, German, cotton, 139.
Ecuador, waterworks, Guayaquil, 309.
Education:
    Commercial, Austria-Hungary, 558.
    Europe, commercial, 556.
    Fuchau, 504.
    Primary commercial, Germany, 190.
Eggs sold by weight, Germany, 588.
Egypt:
    Agricultural exports, 146.
    American goods, delivery, 575.
    American goods, possibilities of sales, 575.
    Chemicals and medicines, 574.
    Commerce, 571.
    Exports, 572.
    Gum arabic, export, 151.

Egypt—Continued.
  Hardware trade, 573.
  Hospital stores, tenders, 606.
  Imports, 571.
  Mining development, 576.
  Suakim-Berber Railway, 576.
  Windmills and pumps, 575.
Electric autocar, Belgium, 311.
Electric cars, speed regulated, Leipzig, 585.
Electric cranes, Germany (illustrated), 380.
Electric fast-flashing light, new, 600.
Electric-light station, Spain, 494.
Electric motors, brake, Sweden, 138.
Electric project, Quebec, 371.
Electric street railway on ice, 317.
Electric tramways:
  Derby, 478.
  Spain, 494.
Electrical goods, Russia, from Germany, 589.
Electricity, use, German vessels, 43.
Elevator, Malta, passenger, 552.
Embroidering apparatus, Germany, 49.
Emerald mines, Colombia, 511.
Emigrants and exporters, Brazil, advice, 345.
Emigration, Canary Islands, 487.
England:
  Bradford, wool-combing industry, 57.
  Congress, sanitary, 134.
  Cotton, high-priced, effects, 605.
  Fire-prevention congress, London, 145.
  Machinery, United States shoe, new, 66.
  Palma international rifle match, competition, 129.
  Steamship route, trans-Atlantic, shortest, 67.
  Taxes and regulations, foreign commercial agents, 249.
  Technical high school, 601.
  Waterworks scheme, 64.
Eregli, coal, abundance, 567.
Estes, W. R. (consul, Antigua), phosphate concessions, Barbuda, West Indies, 505.
Europe:
  Commercial education, 556.
  Commercial schools, advanced, location, 562.
Europe—Continued.
  Commercial treaties, 388.
  Cuban sugar, 484.
  Sugar-beet cultivation, 589.
  Trade terms with Cuba, 292.
  Zinc industry, 251.
European vs. American manufactures, Cuba, 353.
Evans, H. C. (consul-general, London), international food exhibition, London, 469.
Exhibition:
  Alcohol appliances, Lima, 341.
  Industrial and agricultural, Limoges, 224.
  London, food, international, 469.
  Osaka, 472.
  Osaka, description, 449, 580.
  Poultry, Rome, 137.
Experiment, tuberculosis, success, 525.
Exporters, Brazil, advice, 345.
Exports:
  Alum, Germany, 530.
  American flour, Malta, 551.
  British lace and hosiery, 383.
  Canary Islands, 486, 492.
  Caustic soda, Germany, 529.
  Chemicals, Germany, 535.
  China to United States, 105.
  Costa Rica, 116.
  Denmark, 497.
  Drugs, Germany, 534.
  Egypt, 572.
  Electrical goods, Germany to Russia, 589.
  Flour, American, Malta, 551.
  Fruits, Canary Islands (1902), 492.
  Fuchau, 502.
  Germany to Egypt, 566.
  Germany to United States, 303.
  Greek currants, 467.
  Gum arabic, Egypt, 151.
  Honduras, 308.
  Hosiery and glove, Chemnitz, changes, 381.
  Ink, Germany, 532.
  Lead pencils, Germany, 532.
  Matches, Fuchau, 502.
  Mineral, Honduras, 308.
  Olive oil to United States from all countries, 421.
  Potash, caustic, Germany, 529.
  Potatoes, Fuchau, 502.

- Exports—Continued.
  - Poultry and meat, New South Wales, 97.
  - Salts, Germany, 528.
  - Silver coin, Nicaragua, prohibited, 133.
  - Sulphur, Germany, 528.
  - Tea, Fuchau, 502.
  - Teneriffe to United States, 492.
  - Transvaal, 139.
  - Uruguay (1902), 346.
  - Veracruz, 112.
- Exposition:
  - Alcohol, uses, Germany, 32.
  - Automobile, Berlin, 205.
  - Automobile, Brussels, 136.
  - International, Liege, 137.
  - International, Milan (1905), 603.
  - Laborers' welfare, Germany, 378.
  - Mexican, at Milan, 594.
  - Photography, St. Petersburg, 468.
  - Sillein, 306.
  - Sivas, 472.
- Eyes, treatment, Russia, 146.

- Factories:
  - Chemical, German, leading, 535.
  - Glass, Sweden, combination, 135.
  - Meat-canning, Veracruz, 133.
  - Steel, Spain, 235.
- Fair, agricultural, Cüstrin, 51.
- Farm values, Canary Islands, 488.
- Fee, W. T. (consul, Bombay):
  - Cotton crop, India, 168.
  - Dock, Bombay, new, 169.
- Fees, inspecting meat, Germany, 588.
- Ferguson, J. M. (secretary of legation, Tokyo), tariff, Muroran, 105.
- Ferromanganese, duty reduced, Mexico, 594.
- Finances, British municipal works, 66.
- Financial disturbances, Tientsin, remedy, 579.
- Financial fluctuations, Tientsin, 575.
- Financial system, Japan, 438.
- Finland, economic situation, 148.
- Fins, shark, Nicaragua, 309.
- Firearms, manufacture, France, 223.
- Fire extinguisher, Germany, 209.
- Fire-prevention congress, London, 145.
- Fiscal agency, Limon, 310.
- Fish, value of catch, Algeria, 569.
- Flax market:
  - Bohemia, 304.
  - Germany, 304.
- Flour:
  - Fuchau, imports, 501.
  - Milk, Sweden, 88.
  - United States to Liberia, 172.
- Flour and wheat trade, Malta, 551.
- Fog signal, Belgium, 68.
- Foods, prepared, Costa Rica, duty, 143.
- Foreign trade, Denmark, 497.
- Formosa:
  - Camphor forest, 152.
  - Monopolies, government, 170.
- Fowler, J. (consul, Chefoo), bicycles, China, 472.
- France:
  - Alcohol from acetylene, 221.
  - Alcohol from Jerusalem artichoke, 72.
  - American coal, western, 397.
  - American machinery, 394.
  - California prunes, demand, 545.
  - Caper culture, 399.
  - Changes, tariff, 521.
  - Citrate of lime, duty removed, proposed, 522.
  - Coal, steel, and iron production (1902), 217.
  - Colonies, trade, 149.
  - Commercial education, 561.
  - Congress, Biarritz, thalassotherapy, 137.
  - Firearms, manufacture, 223.
  - Fruits, dried, demand, 144.
  - Growing market, American dried fruits, 545.
  - Hemp and flax, bounty, 521.
  - Hop industry, tariff protection, 522.
  - Horseshoe nails, market, 222.
  - Imposition, surtax, 546.
  - Limoges, exposition, industrial and agricultural, 224.
  - Proposed tariff, wool, 479.
  - Schools, commercial, 562.
  - Silk culture, 237.
  - Steamship service with United States (correction), 144.
  - Surtax, imposition, 546.
  - Tariff protection, hop industry, 522.
  - Taxes and regulations, foreign commercial agents, 249.

France—Continued.
  Tunnel under the Seine, 396.
  Wine and fruit crops, southern, 401.
  Zinc industry, 255.
Frazier, R. R. (consul, Copenhagen):
  Trade, Denmark (1901-2), 496.
  Steamship, new, Denmark, 216.
  Steamship service with Copenhagen and Baltic ports, 553.
Freight rates, railway, Germany and United States, 379.
Fruit crops, southern France, 401.
Fruit scale, destruction, Uruguay, 476.
Fruits:
  Citrus, crisis, Italy, 82.
  Dried, demand, France, 144.
  Dried, opening, France, 545.
Fuchau:
  American oil, cost, 502.
  Camphor forests, 503.
  Coal mining, 502.
  Educational and medical work, 504.
  Imports, value, 501.
  Missionary work, 503.
  Products, 501.
Fur industry, Siberia, 464.

Galilee, railroad through, 407.
German cable, new, Emden and New York, 478.
German chambers of commerce, 374.
German chemical industry, literature, 535.
German colony, Kyao-chau, 101.
German commerce, Asia Minor, 565.
German commerce with Canada, 373.
German East Africa, cotton, 139.
German electrical goods, Russia, 589.
German firms, China, 99.
German goods, Canadian tariff, 373.
German inquiry, red zinc, 497.
German ocean vessels, losses (1900), 586.
German request for slag, 479.
German schools, colonial, Witzenhausen, 563.
German steamship line, dividends, 467.
German sugar in England, 588.
Germany.
  Alizarin, production, 533.
  Alkali discovery, 584.
  Alum, exports, 530.
  American evaporated apples, ready sale, 545.
Germany—Continued.
  Aniline, increased value, 533.
  Apparatus, drawing water from cylinders, 208.
  Bark, value, 533.
  Berlin, congress, applied chemistry, 135.
  Blue vitriol, market, 530.
  Bones, knife handles, request, 146.
  Boric acid, use, 531.
  Bremen, shipping (1902), 54.
  Bundling press, latest, 48.
  Cable laying, progress, 525.
  Carbolic acid, imports, value, 531.
  Carbolic acid, production, 531.
  Caustic potash, exports, 529.
  Caustic soda, exports, 529.
  Chemical factories, leading, 535.
  Chemnitz, houses, foreign commercial, 215.
  Chloride of lime, bleaching powder, process of manufacture, 529.
  Chloride of magnesium, 528.
  Cochineal, imports, 533.
  Coloring materials, 532.
  Commerce, Turkey and Asia Minor, 566.
  Copper colors, use forbidden, 531.
  Cüstrin fair, agricultural, 51.
  Demand, American dried fruits, 544.
  Drug trade, condition, 534.
  Dyewood, 532.
  Education, primary commercial, 190.
  Eggs, selling by weight, 588.
  Electric cranes, 380, 604.
  Embroidering apparatus, 49.
  Exports, hosiery and gloves, Chemnitz, 381.
  Exports, United States, 303.
  Exposition, alcohol, uses, 32.
  Exposition, Berlin, automobile, 205.
  Exposition, laborers' welfare, 378.
  Fire extinguisher, 209.
  Flax market, 304.
  Freight railway, new, 586.
  Gallnuts, 533.
  Hamburg, university, proposed, 200.
  Hebrew, school, agriculture, 379.
  Imports from Turkey and Asia Minor, 566.
  Indigo, importation, 532.
  Industries, profits (1902), 200.

Germany—Continued.
  Iron mill, new, 587.
  Jute industry, condition, 587.
  Jute, overproduction, 587.
  Laying cable, 543.
  Lead pencils, factories, 531.
  Leading chemical factories, 535.
  Lignite, peat, and coal-dust fuel, 182.
  Literature, chemical industry, 535.
  Madder, culture, extinct, 532.
  Meat shops, use of tiles, 52.
  Metallic tubing and tube furniture, 202.
  Miscellaneous statistics, chemicals, 534.
  Myrobolans, acid from, 533.
  Nitrate of potash, 528.
  Nitrate of soda, consumption, 529.
  Notes, 530.
  Potash, exports, 528.
  Potassic salts, manufacture, 528.
  Potato as a source of wealth, 32.
  Potato culture, 32.
  Production, sulphuric acid, 530.
  Protest against dutiable values, United States, 584.
  Prussia, incomes and income taxation, 55.
  Quartz glass, manufacture, 50.
  Quarzitol, new brick, 145.
  Railroad, Harz Mountains, 586.
  Railway freight rates in Germany and the United States, 379.
  Railway, new freight, 586.
  Railway statistics, 53.
  Railway supplies, Italy, 586.
  Remarks, chemical industry, 535.
  Saltpeter, production from air, 139.
  Salts, consumption, 528.
  Sand bricks, 51.
  South, agricultural implements, 209.
  Steam dynamo, powerful, 585.
  Strassburg, college, United States, 136.
  Sulphate of barium, shipment to United States, 530.
  Sulphuric acid ammonia, amount manufactured, 530.
  Sumac, importation, 533.
  Tannic acid, use, 534.
  Tobacco industry (1902), 201.
  Trade and finances (1902), 28.
Germany—Continued.
  Trade, Chile, 602.
  Transportation problem and progress, 176.
  Trusts, 587.
  Tube furniture, 202.
  Ultramarine, manufacture, 531.
  Vessels, electricity, use, 43.
  Vintage (1902), 471.
  White arsenic, how used, 531.
  Wurttemberg, trade conditions, 210.
  Zinc industry, 258.
Glass factories, Sweden, combination, 135.
Glass, quartz, manufacture, Germany, 50.
Glassworkers' strike, Bohemia, 548.
Glove and hosiery export, Chemnitz, 381.
Goding, F. W. (consul, Newcastle):
  Coal prices, New South Wales, 593.
  Minerals, Australasia, 95.
  Poultry and meat, exports, 97.
Gold:
  Alaska, discoveries, 300.
  Mining, Siberia, 303.
  Premium, Canary Islands, 493.
  Production, Australasia, 96.
Goodnow, J. (consul-general, Shanghai), exports, China to United States, 105.
Goods, foreign markets, improper packing, 541.
Goods, United States to Canary Islands, transportation facilities, 488.
Gordon, W. D. (consular agent, Johannesburg):
  Catalogues, coffee and lime machines, Johannesburg, 592.
  Exports, Transvaal, 139.
  Machinery, South Africa, demand, 310.
  Machinery, United States, South Africa, opening, 146.
Gottschalk, A. L. M. (consul, San Juan del Norte):
  Nicaragua, export, silver coins, prohibited, 133.
  Shark fins, Nicaragua, 309.
  Soap, Nicaragua, duties, 310.
Government monopolies, Formosa, 170.
Government ownership, railroad, Mexico, 594.
Gracey, S. L. (consul, Fuchau), trade, Fuchau (1902), 501.

Grand Canary, trade, 489.
Granger, H. G. (consular agent, Quibdo), trade notes from Colombia, 596.
Grapes, Spanish, shipment to United States, direct, 81.
Grapevines, Hungary, imports prohibited, 479.
Great Britain:
  Bradford, congress, sanitary, 134.
  Can openers, inquiry, 311.
  Coal product (1902), 145.
  Coal supply, 311.
  Dundee, trade (1902), 61.
  Finances, British municipal trading, 66.
  Fire-prevention congress, London, 145.
  Machines, trimming wall paper, 312.
  Machines, United States shoe, new, 66.
  Municipal socialism, 383.
  Palma international rifle match, competition, 129.
  Standardization, 56.
  Steamship route, trans-Atlantic, shortest, 67.
  Steel castings, inquiry, 312.
  Trans-Atlantic steamship route, shortest, 67.
  Waterworks scheme, England, 64.
  Wool-combing industry, Bradford, 57.
Greece:
  Barrels, paper, opening, 88.
  Canal, Corinthian, 241.
  Currant crisis, 247.
  Currant exports, 467.
  Economic conditions, 86.
  Lithographic stone, 305.
  Silk culture, 239.
  Sulphate of copper, bids, 87.
  Zinc industry, 260.
Greener, R. T. (commercial agent, Vladivostock):
  Custom service, Dalny, 140.
  Duty, needles, Russia, 145.
  Eyes, free treatment, Russia, 146.
  Flour, United States, Siberia, 172.
  Gold mining, Siberia, 303.
  Railway, proposed, Siberia, 131.
  Siberia, foreign enterprises, 140.
Griffin, W. T. (commercial agent, Limoges), exhibition, industrial and agricultural, Limoges, 225.
Grout, J. H. (consul, Malta):
  Bonded stores, tobacco, Malta, 479.
  Malta import regulations, 425.
  Maltese lace, 427.
  Museum, commercial, Malta, 268.
  New breakwater, Malta, 552.
  Passenger elevator, Malta, 552.
  Wheat and flour trade, Malta, 551.
Guadeloupe:
  Butter, duty, 307.
  Telegraph, wireless, 595.
Guatemala, agricultural situation, 316.
Gudger, H. A. (consul-general, Panama), import duties, Colombia, 336.
Guenther, R. (consul-general, Frankfort):
  Autocar, electric, Belgium, 311.
  Cotton goods, South Africa, 431.
  Fire extinguisher, Germany, 209.
  German chemical factory, 584.
  Losses, German ocean vessels, 586.
  Progress, German cable laying, 543.
  Quartz glass, manufacture, Germany, 50.
  Railway freight rates, Germany and United States, 379.
  Saltpeter, Germany, production from air, 139.
  Steam dynamo, Germany, powerful, 585.
  Wireless messages, moving trains, 477.
Gum arabic, Egypt, export, 151.
Gunsaulus, E. N. (consul, Toronto):
  Duty on binder twine, Canada, 142.
  Ontario, new industries, 109.
  Steel industry, Ontario, 142.

Haberdashery, trade, Denmark, 602.
Haiti, financial measure, proposed, 134.
Hale, F. D. (consul, Coaticook), commercial loyalty, Canada, 108.
Hallatt, H. H. (vice-consul, Madrid), steel factory, Spain, 235.
Halstead, M. (consul, Birmingham):
  Can openers, Great Britain, inquiry, 311.
  Machines for trimming wall paper, 312.
  Standardization, Great Britain, 56.
  Steel castings, Great Britain, inquiry, 312.
Hamburg, university, proposed, 200.
Harbor, Veracruz, 110.

Harbor works, Turkey, 305.
Hardware, Sudan, demand, 606.
Harris, E. L. (commercial agent, Eibenstock):
  Bagdad railway and German commerce, Asia Minor, 565.
  Bundling press, Germany, latest, 48.
  Chemical industry, Germany, 527.
  Commercial education, Europe, 556.
  Electric cranes, Germany, 380.
  Electricity, use, German vessels, 43.
  German apparatus to draw water from cylinders, 208.
  German chamber of commerce, 372.
  German colonial school, Witzenhausen, 563.
  German commerce, Canada, 373.
  New machine, manufacture, ice, Germany (illustrated), 391.
  Suit protector, new, against live wires, 390.
  University, Hamburg, proposed, 200.
Harris, H. W. (consul, Mannheim):
  Agricultural implements, South Germany, 209.
  Meat shops, Germany, use of tiles, 52.
  Tobacco industry, Germany (1902), 201.
Hart, C. B. (minister, Bogotá), duties, import, Colombia, 144.
Harz Mountains, railroad, Germany, 586.
Havre, American corn, 398.
Haynes, T. (consul, Rouen):
  Alcohol, from acetylene, France, 221.
  Alcohol from Jerusalem artichoke, 72.
  Horse meat, France, 470.
  Proposed French tariff, wool, 479.
  Steamship service, Rouen, United States, 144.
  Tunnel under Seine, 396.
Hebrew school, agriculture, Germany, 379.
Heenan, T. E. (consul, Odessa), steamship service, Odessa-New York, 307.
Heingartner, A. (consul, Catania):
  Italy, citrus-fruit crisis, 82.
  Sicilian lemon crop, 590.
Hematite mining, Spain, 80.
Hide market, Hungary, 85.
Higgins, J. C. (consul, Dundee), trade, Dundee (1902), 61.
High school, technical, England, 601.
Holaday, R. E. (consul, Santiago de Cuba):
  Agricultural lands, Cuba, 357.
  Santiago de Cuba, trade, 127.
  Trade, Santiago de Cuba (quarter ended March 31, 1903), 361.
Hollis, W. S. (consul, Lourenço Marquez):
  New railways, Southeast Africa, 432.
  Railway, Portuguese East Africa, new, 91.
  Transit dues, goods, Transvaal, 466.
Holloway, W. R. (consul-general, St. Petersburg):
  Asbestos, Siberia, discovery, 307.
  Coal mining, Poland (1902), 589.
  Exposition, photography, St. Petersburg, 468.
  Siberian fur industry, 464.
  Wheat prospects, Russia, 590.
  Zinc industry, Russia, 264.
Honduras:
  Commerce (1902), 121.
  Concession, manufacture, soap and candles, 596.
  Conditions, 308.
  Exports, mineral, 308.
  Railway, traction, 289.
Horse bedding, moss litter, 469.
Horse meat, Paris, 470.
Horseshoe nails, France, market, 222.
Hosiery:
  American vs. European, Cuba, 356.
  Export, Chemnitz, changes, 381.
Hossfeld, F. W. (consul, Trieste):
  Austrian prizes, designs for raising and lowering canal boats, 392.
  Commercial travelers, Austria, 84.
  Commercial treaties, Europe, 388.
House-cleaning device, British, 555.
Hughes, O. J. D. (consul-general, Coburg):
  Cotton, German East Africa, 139.
  Fair, agricultural, Cüstrin, Germany, 51.
  German colony, Kyao-chau, 101.
  German firms, China, 99.
  New Swiss automobile machine, 470.

Hungary:
  Budapest, chemicals, opening, 138.
  Commercial policy, 591.
  Copper production, 591.
  Drawbacks, 549.
  Exposition, Sillein, 306.
  Importation, grapevines, prohibited, 479.
  Law governing commercial education, 559.
  Medical preparation, 471.
  Railway-zone system, State, extension, 138.
  Specie payments, assumption, 305.
  Works, public, proposed, 550.
Hunt, C. B. (consul-general, Vienna), zinc industry, Austria, 251.
Hunt, W. H. (consul, Tamatave):
  Consumption tax, Madagascar, 278.
  Madagascar, trade, 276.
  Port regulations, Tamatave, 92.
Hutchinson, N. (secretary of legation, Santiago), trade-marks, Chile, 285.
Hydraulic locks, Ontario (Trent Valley Canal), 368.

Ice manufacture, Germany (machine, new, illustrated), 391.
Illustrations:
  Electric crane, Kiel, 380.
  Maltese-lace pillow cover, 428.
  Microscope, Germany, 537, 538.
  New ice machine, Germany, 391.
  Olive crusher, 410, 411, 412.
  Railway map, Southeast Africa, 434.
  Suit protector against live wires, 389.
  Tar-macadam roadways, Ontario, 362, 364, 366.
Immigrants, Transvaal, permit, 435.
Implements, agricultural, South Germany, 209.
Import duties:
  Colombia, 282.
  Costa Rica, 144.
Imports:
  Articles of food, stock, Denmark (1899–1902), 499.
  Bark, Germany, 533.
  Blue wood, Germany, 532.
  Bran, oil cake, maize, Denmark, 499.
  Brazil from United States, 505.
  Canary Islands, 485, 490.
  Carbolic acid, Germany, 531.
Imports—Continued.
  Cereals, Malta, 551.
  Chemicals, Egypt, 574.
  Chloroform, Germany, 528.
  Cienfuegos, 358.
  Coal, Marseilles, 547.
  Cochineal, Germany, 533.
  Consumption and values, Denmark, 500.
  Cotton goods, cotton yarn, flour, kerosene, opium, Fuchau, 501.
  Denmark from United States (1899–1901), 496.
  Egypt, 571.
  Extracts, Germany, 534.
  Fuchau, 501.
  Germany, 566.
  Lourenço Marquez, 435.
  Maize, Denmark (1902), 499.
  Redwood, Germany, 532.
  Regulations, Malta, 426.
  Teneriffe (1902), 490, 492.
  United States from China, 105.
  United States from Germany, 303.
  United States to northern Brazil, 505.
  Uruguay (1902), 346.
  Veracruz, 112.
  Yellowwood, Germany, 532.
Improvements, Canary Islands, 487.
Incomes:
  Prussia, 55.
  Taxation, Prussia, 55.
India:
  Bombay, dock, new, 169.
  Cotton crop (1902–3), 98, 168.
  Wheat crop (1902–3), 167.
Ingersoll, J. C. (consul, Cartagena), trade, Cartagena, 281.
International competition, South American markets, 509.
International exposition, Milan (1905), 603.
International food exhibition, London, 469.
Invoices, Salvador, consular, 596.
Invoicing goods, Cuba, 354.
Ireland, steel castings, demand, 217.
Iron:
  Bongoland, smelting methods, 570.
  Consumption, and national prosperity, 387.
  Production, France (1902), 219.

Iron—Continued.
  Sudan, purity, 570.
  Warehouses, Barcelona, 144.
Iron vs. steel, British shipbuilding, 470.
Irvine, L. C. (vice-consul-general, Rio de Janeiro):
  Advice, exporters and emigrants, Brazil, 345.
  Coffee legislation, Sao Paulo, 476.
  Coffee market, Brazil, 343.
Italy:
  Building activity, 599.
  Citrus-fruit crisis, 82.
  Commercial and industrial situation, 605.
  Commercial navy, 598.
  Communication with Balkan States, 311.
  German railway supplies, 586.
  International exposition, Milan (1905), 603.
  Milan, silk market, importance, 314.
  Milan, water supply, 225.
  Olive oil, 590.
  Rome, exhibition, poultry, 137.
  Ships, sizes, 598.
  Steamers, 598.
  Zinc industry, 260.
Ivory market, Antwerp, 71.

Jackson, F. W. (consul, Patras):
  Canal, Corinthian, 241.
  Currant crisis, Greece, 247.
  Paper barrels, Greece, opening, 88.
  Sulphate of copper, Greece, bids, 87.
Jackson, G. H. (consul, La Rochelle):
  New steamship line, La Rochelle to Canada, 372.
  United States machinery, France, 396.
Jackson, J. B. (minister, Athens):
  Greek currants, exports, 467.
  Kerosene pipe line, Roumania, 478.
Japan:
  Financial system, 438.
  Machinery, weaving, 141.
  Muroran, tariff, 105.
  Railways, 104.
  State railways, 104.
  Sugar refining, 102.
  Trade, Philippine Islands, 192.
Jarvis, W. (consul, Milan):
  Water supply, Milan, 225.
  Zinc industry, Italy, 260.
Jenkins, J. (consul, San Salvador), consular invoices, Salvador, 596.
Jerusalem artichoke, alcohol from, 72.
Jewett, M. E. (consul, Sivas), exposition, Sivas, 472.
Johnson, F. S. S. (commercial agent, Stanbridge):
  Automobile touring, Canada, 473.
  Canal, Lake Champlain-St. Lawrence, proposed, 108.
  Electric project, Quebec, 371.
  Railways and canals, Canada, 107.
Jones, R. B. (vice-consul-general, Guayaquil), waterworks, Guayaquil, 309.
Jute industry, Germany, condition, 587.
Jute, overproduction, Germany, 587.

Kehl, J. E. (consul, Stettin), German meat-inspection fees, 588.
Kenneday, K. K. (consul, Para):
  Shipments, rubber, Para, 596.
  Trade, northern Brazil, 504.
Kerosene:
  Fuchau, imports, 501.
  Pipe line, Roumania, 478.
Kidder, D. S. (consul, Algiers):
  Fishing, Algeria, 569.
  Zinc industry, Algeria, 266.
King, H. (consul-general, Bangkok), windmills, Siam, 437.
Knife handles, bones for, request, Germany, 146.
Knitted stuffs, Cuba, American vs. European, 356.
Konia, commercial importance, 567.
Korea, industrial situation, 481.
Kyao-chau, colony, German, 101.

Labor troubles, British Columbia, 370.
Laborers' welfare, exposition, Charlottenburg, 378.
Lace and hosiery exports, British, 383.
Lace making, Malta, 427.
Lake Champlain-St. Lawrence canal, proposed, 108.
Langer, J. J. (consul, Solingen):
  Bones, knife handles, Germany, request, 146.
  Exposition, laborers' welfare, 378.

Languages, foreign, catalogues, 606.
La Rochelle, new steamship line, Canada, 372.
Launch service, Costa Rica, 352.
Lay, J. G. (consul-general, Barcelona):
  Iron for warehouses, Barcelona, 144.
  Olive growing, Spain, 422.
  Spain, trade (1902), 227.
  Spanish request, brick-making machinery, 591.
  Steel factory, Spain, 235.
  Sugar trust, Spain, proposed, 234.
Legalization, foreign documents, Cuba, 474.
Legislation, coffee, Sao Paulo, 476.
Leipzig:-
  Automobiles, regulations, 585.
  Employees, 588.
Leishman, J. G. A. (minister, Constantinople), tariff change, Persia, 140.
Lemon crop, Sicily, 590.
Liberia, trade, 466.
Liege, exposition, international, 137.
Light, fast-flashing, electric, 600.
Lignite, Germany, 182.
Limes, West Indies, 316.
Limoges, exhibition, industrial and agricultural, 224.
Limon, fiscal agency, 310.
Lincoln, G. F. (consul-general, Antwerp):
  Ivory market, Antwerp, 72.
  Zinc industry, Belgium, 253.
Lithographic stone:
  Greece, 305.
  Mexico, concessions for quarrying, 291.
Live wires, suit protector against, 389.
Locomotives, orders, Prussia, 586.
London:
  Fire-prevention congress, 145.
  International food exposition, 469.
Long, J. G. (consul-general, Cairo):
  Agricultural exports, Egypt, 146.
  Commerce, Egypt, 571.
  Iron, Sudan, 570.
Lord, W. P. (minister, Buenos Ayres):
  Argentine Republic, trade (1902), 287.
  Cattle inspection, Argentine Republic, 124.
Lourenço Marquez, imports, 435.
Lovelace, A. (acting consular agent, Gijon), trade, Asturias, Spain, opening, 494.
Lumber:
  Canary Islands, 486.
  Cuba, 128.
Lyons, S. S. (consul, Kobé):
  Machinery, weaving, Japan, 141.
  Osaka exhibition, 449, 580.
  Railways, Japan, 104.

McFarland, S. C. (consul, Reichenberg):
  Industrial census, Bohemia, 391.
  Strike, glassworkers, Bohemia, 548.
McGinley, D. E. (consul, Athens):
  Lithographic stone, Greece, 305.
  Silk culture, Greece, 239.
  Zinc industry, Greece, 260.
Machinery:
  Agricultural, Russia, request, 306.
  Agricultural, Sudan, demand, 606.
  American, in France, 394.
  Brick-making, request for, Spain, 591.
  Fittings and structural steel in Cuba, American vs. European, 353.
  Market, South Africa, 150.
  New buttonhole machine, 470.
  South Africa, demand, 310.
  Trimming wall paper, 312.
  United States shoe, England, new, 66.
  United States, South Africa, opening, 146.
  Weaving, Japan, 141.
McKellip, W. A. (consul, Magdeburg), sand bricks, Germany, 51.
McLain, T. J. (consul, Nassau), railway, marine, Nassau, 144.
Madagascar:
  Tamatave, port regulations, 92.
  Tax, consumption, 278.
  Trade, 276.
Mahin, F. W. (consul, Nottingham):
  British house-cleaning device, 555.
  British lace and hosiery exports, 383.
  Coal product, Great Britain (1902), 145.
  Coal supply, Great Britain, 311.
  Electric tramway, Derby, 478.
  Iron vs. steel, British shipbuilding, 470.

Mahin, F. W.—Continued.
  Machines, United States shoe, England, new, 66.
  Moss litter for horse bedding, 469.
  Municipal works, Great Britain, finances, 66.
  Waterworks scheme, England, 65.
Maize, imports, Denmark (1902), 499.
Malmros, O. (consul, Colon), import duties in Colombia, 282, 336.
Malta:
  Bonded stores for tobacco at, 479.
  Import regulations at, 425.
  Lace making in, 427.
  Museum, commercial, 268.
  Passenger elevator, 552.
Man, E. A. (consul, Breslau):
  American and Russian petroleum in Germany, 542.
  German inquiry for red zinc ore, 477.
Manchuria:
  Commercial relations with Russia, 173.
  Economic changes, 313.
  Trade of (1902), 455.
Mansfield, R. E. (consul, Valparaiso):
  Nitrate production, Chile, 286.
  Trans-Andine Railway, bill for construction, 339.
Marine railway, Nassau, 144.
Markets:
  Flax, Bohemia, 304.
  Flax, Germany, 304.
  Hide, Hungary, 85.
  Horseshoe nails, France, 222.
  Ivory, Antwerp, 71.
  Machinery, South Africa, 150.
  Silk, Milan, importance, 314.
  Wood pulp, Sweden, 306.
Mason, D. B. (vice and deputy consul-general, Berlin), rapid telegraphy, Germany, 543.
Mason, F. H. (consul-general, Berlin):
  Dutiable values, United States, question, 584.
  Exports, Germany to United States, 303.
  Exposition, automobile, Berlin, 205.
  Lignite, peat, and coal-dust fuel, Germany, 182.
  May crop report, Prussia, 540.
Mason, F. H.—Continued.
  Metallic tubing and tube furniture, Germany, 202.
  New treatment for tuberculosis, 524.
  Potato as a source of wealth, Germany, 32.
  Relation of iron consumption to national prosperity, 387.
  Trade and finances, Germany (1902), 38.
  Transportation problems and progress, Germany, 176.
  Zinc industry, Germany, 258.
Matches, Fuchau, 502.
Meat-canning factory, Veracruz, 133.
Meat export, New South Wales, 97.
Meat shops, Germany, use of tiles, 52.
Meat sterilization, Belgium, 72.
Medical preparations in Hungary, 471.
Medicinal plants, Paraguay, 132.
Melbourne, trade request, 593.
Metallic tubing, Germany, 202.
Metcalf, H. W. (consul, Newcastle-on-Tyne), combine of shipbuilders on the Tyne, 592.
Mexico:
  Cattle market in, 475.
  Commercial museums abroad, 594.
  Customs duties on small shipments to, 475.
  Dynamite and powder, tax, 593.
  Government purchases railroad, 594.
  Lithographic stone, concession for quarrying, 291.
  New railway in Veracruz, 352.
  Proposed patent laws of, 475.
  Railway-car plant, 132.
  Stamp taxes, changes, 521.
  Tariff, ferromanganese, 594.
Microscope, new, Germany (illustrated), 537, 538.
Milan:
  Silk market, importance, 314.
  Water supply, 225.
Milk flour, Sweden, 88.
Mill, iron, new, Germany, 587.
Miller, H. B. (consul, Niuchwang):
  Bicycles, China, 171.
  Railway, through service, Moscow-Dalny, 174.
  Trade, Manchuria (1902), 455.
Mineral exports, Honduras, 308.

Mineral resources, Peru, 340.
Minerals, Australasia, 95.
Mining:
    Copper, Hungary, 591.
    Gold, Siberia, 303.
    Hematite, Spain, 80.
    Iron ore, Egypt, 570.
Mining enterprises and limited companies, Bolivia, 122.
Mining regulations, German East Africa, 269.
Mitchell, M. (consul, Zanzibar), mining regulations, German East Africa, 269.
Moe, A. K. (consul, Tegucigalpa):
    Honduras, conditions, 308.
    Railway, traction, Honduras, 289.
Monaghan, J. F. (consul, Chemnitz):
    Changes in Chemnitz hosiery and glove export, 381.
    Houses, foreign commercial, 215.
    Microscope in Germany, new, 536.
    Packing goods for foreign markets, 541.
    Proposed German tariff on machinery, 523.
    Taxes and regulations, foreign commercial agents, 251.
Money panic, Tientsin, cause, 576.
Monopolies, government, Formosa, 170.
Montenegro:
    Commercial movement, 315.
    Trade notes, 175.
Moscow-Dalny through railway service, 174.
Moss litter, horse bedding, 469.
Mosul, commercial center, 567.
Motors, electric, brake, Sweden, 138.
Moulton, G. H. (consul, Demerara), tariff of British Guiana (year ending March 31, 1904), 319.
Muench, H. (consul, Zittau), flax market, Germany and Bohemia, 304.
Municipal socialism, latest development, Great Britain, 383.
Municipal works, Great Britain, finances, 66.
Muroran, tariff, 105.
Murphy, G. H. (consular clerk, Frankfort):
    Incomes and income taxation, Prussia, 55.
    International competition in South American markets, 509.
Museums:
    Commercial, Malta, 268.
    Commercial, Mexican, abroad, 594.

Nails, horseshoe, France, market, 222.
Nassau, railway, marine, 144.
National prosperity and iron consumption, 387.
Navigation at Cienfuegos, foreign vessels (1902), 359.
Navy, commercial, Italy, 598.
Needles, duty, Russia, 145.
Netherlands:
    Commercial schools, 558.
    Indian exhibit, Osaka exhibition, 580.
    Taxes and regulations, foreign commercial agents, 249.
New South Wales:
    Coal prices, 593.
    Poultry and other meat, export, 97.
New tariff, Colombia, 512.
New York-Odessa steamship service, 307.
Newel, S. (minister, The Hague), timber concessions, Dutch Guiana, 511.
Nicaragua:
    Agricultural products, 347.
    Cacao planting, 347.
    Exports, silver coins, prohibited, 133.
    Shark fins, 309.
    Soap, duties, 310.
Nitrate production, Chile, 286.
Niuchwang, trade (1902), 457, 461.
Norfolk Island:
    Cable, 279.
    Trade, 279.
    Whaling, 279.
Northern Brazil, trade, 504.
Norton, T. H. (consul, Harput), paints and varnishes, eastern Turkey, 166.
Norway and Sweden, commercial education, 561.
Norway, taxes and regulations, foreign commercial agents, 249.

Odessa-New York steamship service, 307.
Oil, olive, Spain, 78.
Olive crop of California, 419.
Olive oil:
    Italy, 590.
    Spain, 78.

Olive-oil manufacture in France:
  Clarification and filtration processes, 415.
  Classification and uses of oil and cake, 417.
  Exports of oil to United States, 421.
  Extraction of oil, 411.
  Treatment of oil cake, 414.
Olives and olive culture in France and California, 403.
Olives and olive oil in Spain, 422.
Ontario:
  Arsenic deposits, 302.
  Hydraulic lock in (Trent Canal), 368.
  New industries, 109.
  Peat for fuel, 593.
  Steel industry, 142.
  Tar-macadam roadways in (illustrated), 361.
Opening for trade in Asturias, Spain, 494.
Opium, exports, Fuchau, 502.
Orinoco, blockade, 125.
Osaka:
  American representation at exhibition, 472.
  Exhibition at, description of, 449.
Ozmun, E. H. (consul, Stuttgart), Wurttemberg, trade conditions, 210.

Packing goods for Cuba, 354.
Paints, eastern Turkey, 166.
Palma international rifle match, competition, 129.
Panic, financial, Tientsin, cause, 577.
Paper:
  Wall, Denmark, 602.
  Wall, machines for trimming, 312.
Paper barrels, Greece, opening, 88.
Para, rubber shipments, 596.
Paraguay, plants, medicinal and textile, 132.
Paris, horse meat, 470.
Patent laws, proposed, Mexico, 475.
Patents and trade-marks, registration, Cuba, 506.
Patterson, R. F. (consul-general, Calcutta):
  Cotton crop, India (1902-3), 98.
  United States trade in British India, 495.
  Wheat crop, India (1902-3), 167.
Peat:
  Germany, 183.
  Ontario, 593.
Persia:
  Tariff change, 140.
  Tariff, new, 153.
Peru:
  Exhibition, alcohol appliances, Lima, 341.
  Mineral and agricultural resources, 340.
  Trade (1901), 308.
Petroleum:
  British Columbia, 300.
  Canary Islands, 486.
  Costa Rica, duties, 310.
  Trade, Russia, 1.
Philippine Islands, trade with Japan, 152.
Phosphate concession, Barbuda, West Indies, 505.
Photography, exposition, St. Petersburg, 468.
Pier:
  Almeria, Spain, 425.
  Smyrna, 479.
Pipe line, kerosene, Roumania, 478.
Plant, power, Saxony, 585.
Plants, medicinal and textile, Paraguay, 132.
Plated ware, Spain, 79.
Plumacher, E. H. (consul, Maracaibo):
  Closing Venezuelan custom-houses, 597.
  Coinage, Venezuela, 597.
  Tariff changes, Venezuela, 476.
  Venezuela, duty, pine, 480.
Poland:
  Coal mining, 589.
  Russian, United States goods, 27.
Pork, American, Turkey, 479.
Port regulations, Tamatave, 92.
Portuguese East Africa, railway, new, 91.
Postage rates, Canada, 141.
Potassic salts as fertilizer, 528.
Potato as a source of wealth, Germany, 32.
Potato culture, Germany, 32.
Potatoes, exports, Fuchau, 502.
Pottery industry, Saragossa, 591.
Poultry:
  Exhibition, Rome, 137.
  Export, New South Wales, 97.

Powder, tax, Mexico, 593.

Powell, W. F. (minister, Port au Prince), Haiti, financial measures, proposed, 134.

Press, bundling, Germany, latest, 48.

Presses, straw, sale for, Russia, 607.

Price, M. M. (commercial agent, Jeres de la Frontera), trade notes from Andalusia, 424.

Prizes for raising and lowering canal boats in Austria, 392.

Proffit, J. E. (consul, Pretoria), permits for immigrants into the Transvaal, 435.

Prohibition, import of grapevines, Hungary, 479.

Prussia:
- Crop report, 540.
- Incomes and income taxation, 55.
- Locomotives, new, 586.
- Railways, 586.

Public works, proposed, Hungary, 550.

Puerto Cabello, exports, 309.

Quartz glass, manufacture, Germany, 50.

Quarzitol, new brick, Germany, 145.

Quay duties, Pointe a Pitre, illegal, 595.

Quebec, electric project, 371.

Quinine sold, auction, Batavia, 582.

Ragsdale, J. W. (consul-general, Tientsin), financial crisis in Tientsin, 576.

Railway-car plant, Mexico, 132.

Railway, electric street, on ice, 317.

Railway equipment, Canada, new, 302.

Railway freight rates in Germany and United States, 379.

Railway project, Cuba, 474.

Railway service, through, Moscow-Dalny, 174.

Railways:
- Achievement, Bagdad, 566.
- Andalusia, new. 232.
- Canada, 107.
- Costa Rica, 116.
- Galilee, proposed, 467.
- Japan, 104.
- Marine, Nassau, 144.
- Nationalization of Swiss, 483.
- Network of Tonkin, 481.
- New, Southeast Africa, 432.
- New, Veracruz, 352.
- Portuguese East Africa, new, 91.
- Proposed, British Honduras, 350.

Railways—Continued.
- Siberia, proposed, 131.
- Siberian express schedule, 461.
- Spain, 494.
- State, Canada, 107.
- State, zone, system, Hungary, extension, 138.
- Statistics, Germany, 53.
- Traction, Honduras, 289.
- Trans-Andine, bill for construction, 337.
- Yukon, Canadian, 131.
- Veracruz, 111.

Rairden, B. S. (consul, Batavia), quinine auction, Batavia, 582.

Raising and lowering canal boats, Austria, prizes for designs, 392.

Rapid telegraph, new invention, Germany, 543.

Ravndal, G. B. (consul, Beirut):
- Progress in Africa, 429.
- Railroad through Galilee, 467.
- Silk culture, Syria, 165.
- Suez Canal traffic, 429.
- United States agencies, 90.

Red-zinc ore, Germany, inquiry, 477.

Registered ocean vessels, German losses (1900), 586.

Registration, patents and trade-marks, Cuba, 506.

Report, crop, Prussia, 540.

Rice crop, Nicaragua, 349.

Ridgely, B. H. (consul, Nantes):
- American coal, western France, 397.
- Fruits, dried, France, demand, 144.
- Horseshoe nails, France, market, 222.
- Wine and fruit crops, southern France, 402.

Rifle match, Palma, international, competition, 129.

Roadways, Ontario, tar-macadam, 361.

Robinson, I. (consular agent, Norfolk Island), Norfolk Island, trade, 279.

Rome, exhibition, poultry, 137.

Roosevelt, G. W. (consul, Brussels):
- Exposition, automobile, Brussels, 136.
- Fog signal, Belgium, 68.
- Meat, sterilization, Belgium, 72.

Roumania:
- Commercial travelers, 603.
- Kerosene pipe line, 478.

Rubber shipments:
  Brazil, 504.
  Para, 596.
Ruffin, J. N. (consul, Asuncion), plants, medicinal and textile, Paraguay, 132.
Russell, W. W. (secretary of legation, Caracas), Orinoco, blockade, 125.
Russia:
  Chemical industry, 174.
  Commercial relations with Manchuria, 173.
  Duty, needles, 145.
  Eyes, free treatment, 146.
  Machinery, agricultural, request, 305.
  Odessa-New York steamship service, 307.
  Petroleum trade, 1.
  Railway, electric street, on ice, 317.
  Railway service, through, Moscow-Dalny, 174.
  Straw presses, 607.
  Taxes and regulations, foreign commercial agents, 250.
  Trade with China, 149.
  Wheat prospects, 590.
  Zinc industry, 264.
Russo-Persian trade, 482.

Sailcloth, South America, 596.
St. Petersburg, photography exposition, 468.
Salt-mining machines, American, demand, Russia, 589.
Saltpeter, Germany, production, air, 139.
Sand bricks, Germany, 51.
Sanitary congress, Bradford, 134.
Santiago de Cuba:
  Imports and exports, 127.
  Trade, 361.
Sao Paulo, coffee legislation, 476.
Sawmills, Cuba, 128.
Saxony, power plant, 585.
Saylor, H. D. (consul, Dawson City), gold discoveries, Alaska, 300.
Schools:
  Hebrew school, agriculture, Germany, 379.
  Technical, England, 601.
Schumann, W. (consul, Mainz):
  Dividends, German steamship lines, 467.
  European sugar-beet cultivation, 589.
Schumann, W.—Continued.
  Railway statistics, Germany, 53.
  Vintage, Germany (1902), 471.
Scotland, Dundee, trade (1902), 61.
Seeger, E. (consul-general, Rio de Janeiro), duties, transit, Amazon, abolished, 134.
Sewage, Vancouver, disposal, 143.
Shark fins, Nicaragua, 309.
Shepard, J. M. (consul, Hamilton, Ontario), tar-macadam roads, Ontario, 361.
Shipbuilders on Tyne, combine, 592.
Shipbuilding, British, iron vs. steel, 470.
Shipping business, Bremen (1902), 54.
Shipping medicine, advice, 575.
Shipping, Santa Cruz de Teneriffe (1902), 493.
Shoe machines, United States, England, new, 66.
Shops, meat, Germany, use of tiles, 52.
Siam, windmills, 437.
Siberia:
  Asbestos, discovery, 307.
  Economic changes, 313.
  Enterprises, foreign, 140.
  Flour, United States, 172.
  Fur industry, 464.
  Gold mining, 303.
  Railway, express schedule, 461.
  Railway, proposed, 131.
Sicily, lemon crop, 590.
Signal, fog, Belgium, 68.
Silk:
  France, culture, 237.
  Greece, 239.
  Syria, culture, 165.
Silk market, Milan, importance, 314.
Silk-muslin manufacture, proposed, for United States, 478.
Sillein, exposition, 306.
Silver coins, export, Nicaragua, prohibited, 133.
Silverware, Spain, 79.
Simplon Tunnel, progress, Geneva, 550.
Singapore, industrial conditions, 314.
Sivas, exposition, 472.
Size, Italy's ships, 598.
Skinner, R. P. (consul-general, Marseilles):
  Caper culture, France, 399.
  Coal importations, Marseilles, 547.

Skinner, R. P.—Continued.
  Olives and olive oil, France (illustrated), 403.
  Request for delinting machines for cotton seed, 477.
  Surtax on goods indirectly imported into France, 545.
  Zinc industry, France, 256.
Slag, German request, 479.
Sleeper, J. (chargé d'affaires, Habana), diplomatic and consular service, Cuba, 128.
Slocum, C. R. (consul, Warsaw), American typewriting and salt-mining machines wanted, 589.
Smith, A. E. (consul, Victoria):
  Bridges, British Columbia, new, 143.
  Coal and petroleum, British Columbia, 300.
  Coal industry, British Columbia, 370.
Smyrna, pier, 479.
Soap, Nicaragua, duties, 310.
Socialism, Great Britain, latest development, municipal, 383.
Soda, production, world, 529.
Sorsby, W. B. (minister, La Paz), mining enterprises and limited companies, Bolivia, 122.
Spain:
  Almond outlook, 471.
  Andalusia, trade (1902), 231.
  Andalusia, trade information from, 424.
  Barcelona, iron for warehouses, 144.
  Electric-light station, 494.
  Electric tramway, 494.
  Foreign commerce (1902), 77.
  Grapes, shipments to United States, direct, 81.
  Hematite mining, 80.
  Oil, olive, 78.
  Olives and olive oil, 422.
  Pier, Almeria, 425.
  Railway, new, Andalusia, 232.
  Railways, 494.
  Request for brick-making machinery, 591.
  Silver and plated ware, 79.
  Steamship service with United States, 236.
  Steel factory, 235.
  Sugar trust, proposed, 234.
Spain—Continued.
  Trade (1902), 227.
  Trade notes from (enlargement of American trade), 425.
  Trade opening, Asturias, 494.
  Tramway, electric, 494.
Specie payments, Hungary, assumption, 305.
Sports, athletic, Denmark, 602.
Squiers, H. G. (minister, Habana):
  American vs. European manufactures in Cuba, 353.
  Cuba, trade, 126.
  Sugar production, Cuba, 507.
Standardization, Great Britain, 56.
State railways:
  Canada, 107.
  Japan, 104.
  Zone system, Hungary, extension, 138.
Statistics, railway, Germany, 53.
Steamers, Italy, number and tonnage, 598.
Steamship lines:
  Costa Rica, 117.
  Dividends, German, 467.
  La Rochelle to Canada, 372.
  Veracruz, 111.
Steamship, new, Denmark, 216.
Steamship route, trans-Atlantic, shortest, 67.
Steamship service:
  Odessa-New York, 307.
  Rouen-United States: Correction, 144.
  United States and Spain, 236.
Steel castings:
  Great Britain, inquiry, 312.
  Ireland, demand, 217.
Steel factory, Spain, 235.
Steel industry, Ontario, 142.
Steel production, France (1902), 221.
Steinhart, F. (consul, Habana):
  Clearance of merchant vessels for Cuban ports, 473.
  Legalization of foreign documents in Cuba, 474.
Sterilization, meat, Belgium, 72.
Stores, hospital, Egypt, tenders, supply, 606.
Straits Settlements, industrial conditions, 314.
Strassburg, college, United States, 136.

Straw presses, Russia, 607.

Street, electric, railway on ice, 317.

Strike, British Columbia, coal miners, 370.

Sudan:
  Agricultural machinery and hardware, 606.
  Bahr-el-Ghazal, description of, 570.
  Cotton, quality, 576.
  Darfur, 570.
  Kordofan, 570.
  Minerals, discovery, attracting American capitalists, 571.
  Smelting methods, Bongoland, 570.

Suez Canal traffic, 428.

Sugar:
  Canary Islands, 487.
  Cuban, for Europe, 484.
  Cultivation, Nicaragua, 349.
  Exports, Cienfuegos (1902), 359.
  German, in England, 588.
  Nicaragua, 347.
  Production, Cuba, 507.
  Refining, Japan, 102.
  Veracruz, 113.

Sugar trust, Spain, proposed, 234.

Suit protector against live wires (illustrated), 389.

Sulphate of barium, Germany, 530.

Sulphate of copper, Greece, bids, 87.

Supplies, railway, German, for Italy, 586.

Swalm, A. W. (consul, Montevideo):
  Commerce, Uruguay (1902), 346.
  Destruction of fruit scale, Uruguay, 476.

Swanson, P. (consular agent, Grand Canary), trade, Grand Canary, 489.

Sweden:
  Electric motors, brake, 138.
  Glass factories, combination, 135.
  Milk flour, 88.
  Wood-pulp market, 306.

Sweden and Norway, taxes and regulations, foreign commercial agents, 250.

Switzerland:
  Automobiles, United States, introduction, 73.
  Commercial education, 556.
  Nationalization of railways, 483.
  Taxes and regulations, foreign commercial agent, 250.

Syria:
  Silk culture, 165.
  United States agencies, 90.

Tamatave, port regulations, 92.

Tariff:
  Austria-Hungary, proposed, 85.
  British Guiana (year ending March 31, 1904), 319.
  Canadian, German goods, 372.
  Change, Persia, 140.
  Changes, France, proposed, 521.
  Changes, Venezuela, 476.
  Colombia, new, 512.
  German machinery, proposed, 523.
  Muroran, 105.
  Persia, new, 153.
  Problems, Australia, 604.
  Proposed French, on wool, 479.

Tar-macadam roadways, Ontario (illustrated), 361.

Tasmania, trade, 96.

Tax, consumption, Madagascar, 278.

Taxes and regulations, foreign commercial agents, 248.

Tea, exports, Fuchau, 502.

Technical high school, England, 601.

Telegraph, new invention, 543.

Textile plants, Paraguay, 132.

Thackara, A. M. (consul, Havre):
  American corn, Havre, 398.
  Coal, steel, and iron production, France (1902), 217.

Thalassotherapy, congress, Biarritz, 137.

Tiles, meat shops, Germany, 52.

Timber concessions, Dutch Guiana, 511.

Tobacco:
  Bonded stores, Malta, 479.
  Canary Islands, 486.
  Exports of leaf tobacco, cigars, and cigarettes from Cienfuegos (1902), 360.
  Industry, Germany (1902), 201.
  Leaf, value, Canary Islands, 486.
  Nicaragua, 347.
  Production in Nicaragua, 349.

Tonkin, railway network of, 481.

Tool manufacturers, names requested, Stuttgart, 477.

Tourgée, A. W. (consul, Bordeaux), wine and fruit crop, southern France, 401.

Touvelle, W. W. (consul Belfast), steel castings, Ireland, demand, 217.

Trade:
  Canary Islands, 489.
  Demark, foreign, 497.
  Haberdashery, Denmark, 602.

- Trade—Continued.
  - Information wanted, 477.
  - Malta, wheat and flour, 551.
  - Manchuria (1902), 455.
- Trade notes, Andalusia, 424.
- Trade-marks and patents, registration, Cuba, 506.
- Trade-marks, Chile, 285.
- Trade request, Melbourne, 593.
- Tramway, electric, Derby, 478.
- Trans-Andine Railway, bill for construction, 337.
- Trans-Atlantic steamship route, shortest, 67.
- Transit dues on goods for the Transvaal, 466.
- Transportation and shipping, Canary Islands, 488.
- Transportation problems and progress, Germany, 176.
- Transvaal:
  - Exports, 139.
  - Permits for immigrants into, 435.
  - Transit dues on goods for, 466.
  - Travelers, commercial, Roumania, 603.
- Treaties:
  - Commercial, Europe, 388.
  - Reciprocal, proposed, Hungary, 591.
- Trent Canal, hydraulic lock, 361.
- Trusts, Germany, 587.
- Tube furniture, Germany, 202.
- Tuberculosis, treatment, new, 524.
- Tubing, metallic, Germany, 202.
- Tunis, cotton cultivation, 482.
- Tunnel under the Seine, 396.
- Turkey:
  - American pork, 479.
  - Eastern, paints and varnishes, 166.
  - Harbor works, 305.
- Twine, binder, duty on, Canada, 142.
- Tyler, J. (vice-consul-general, Teheran), tariff, Persia, new, 153.
- Typewriters, American, demand, Russia, 589.

- Underwear, Cuba, American vs. European, 356.
- United States:
  - Agencies, Syria, 90.
  - Alaska, gold discoveries, 300.
  - Automobiles, Switzerland, introduction, 73.
- United States—Continued.
  - College, Strassburg, 136.
  - Flour, Siberia, 172.
  - Goods, Russian Poland, 27.
  - Grapes, Spanish, shipments to, direct, 81.
  - Imports from China, 105.
  - Imports from Germany, 303.
  - Investments, Canada, 293.
  - Machinery, France, 394.
  - Machinery, South Africa, opening, 146.
  - Odessa-New York steamship service, 307.
  - Railway freight rates in, and in Germany, 379.
  - Shoe machines, England, new, 66.
  - Steamship route, trans-Atlantic, shortest, 67.
  - Steamship service with France: Correction, 144.
  - Steamship service with Spain, 236.
  - University, Hamburg, proposed, 200.
- Uruguay:
  - Commerce (1902), 346.
  - Fruit scale, destruction, 476.

- Value, farms, Canary Islands, 488.
- Varnishes, eastern Turkey, 166.
- Vegetables, production, Nicaragua, 349.
- Venezuela:
  - Coinage, 597.
  - Duty on pine in, 480.
  - Orinoco, blockade, 125.
  - Puerto Cabello, exports, 309.
  - Tariff changes in, 476.
- Veracruz:
  - Exports, 112.
  - Harbor, 110.
  - Imports, 112.
  - Meat-canning factory, 133.
  - Railway, new, 352.
  - Railways, 111.
  - Steamship lines, 111.
  - Sugar, 113.
  - Trade, 110.
- Vessels, German, electricity on, 43.
- Vintage, Germany (1902), 471.

- Wages, glassworkers, Bohemia, 548.
- Wall paper, machines for trimming, 312.
- Ware, silver and plated, Spain, 79.

Warehouses, iron for, Barcelona, 144.
Warner, B. H. (consul, Leipzig):
  Alkali discovery, Germany, 585.
  City employees, Leipzig, 588.
  German electrical goods, Russia, 589.
  German railway supplies, Italy, 586.
  German sailcloth, South Africa, 596.
  German sugar, England, 588.
  Iron mill, Germany, new, 587.
  Locomotives, railway, Prussia, 586.
  New freight railway, Germany, 586.
  Power plant, Saxony, 585.
  Railroad, Harz Mountains, Germany, 586.
  Regulations, electric cars and automobiles, Leipzig, 585.
  Selling eggs by weight, Germany, 588.
Washington, H. L. (consul, Geneva):
  Automobiles, United States, Switzerland, introduction, 73.
  Progress, Simplon Tunnel, 550.
Water supply, Milan, 225.
Waterworks:
  Guayaquil, 309.
  Scheme, England, 64.
Webster, A. G. (consul, Hobart), trade, Tasmania, 96.
West Indies, limes, 316.
Western Australia, aqueduct, 436.
Whale-oil dealers, names wanted, Cape Town, 480.
Whaling, Norfolk Island, 279.
Wheat and flour trade, Malta, 551.
Wheat crop, India (1902–3), 167.
Wheat, Russia, prospects, 590.
White, H. (chargé d'affaires), London, fire-prevention congress, London, 145.
White, J. (consul, Hanover):
  German request for slag, 479.
  Hebrew school of agriculture, Germany, 379.
Windmills, Siam, 437.
Wines:
  California, introduction, Denmark, 602.
  Crop, southern France, 401.
  Trade, Cuba, 474.
Winter, J. F. (consul, Annaberg), new German cable, 478.
Wireless messages from moving trains, 477.
Wireless telegraph, Gaudeloupe, 595.
Witzenhausen, school, colonial, German, 563.
Wood-pulp market, Sweden, 306.
Wool:
  Proposed French tariff on, 479.
  Shipments, Australia, 141.
Wool-combing industry, Bradford, 57.
Works, public, Hungary, 550.
World's commerce, review, 146.
Worman, J. H. (consul-general, Munich), trusts, Germany, 587.
Wurttemberg, trade conditions, 210.

Yucatan, corn crop, failure, 595.
Yukon, railway, Canadian, 131.

Zinc industry:
  Algeria, 266.
  Austria, 251.
  Belgium, 253.
  Europe, 251.
  France, 255.
  Germany, 258.
  Greece, 260.
  Italy, 260.
  Russia, 264.

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